

ONKYO®

DVD Receiver

DR-90

Instruction Manual



THIS DVD PLAYER IS MANUFACTURED FOR PLAYBACK OF REGION 1 (USA, CANADA) ENCODED DVD SOFTWARE. USE OF SOFTWARE NOT INTENDED FOR REGION 1 PLAYBACK MAY RESULT IN UNDESIRABLE PLAYER PERFORMANCE.

Thank you for purchasing the ONKYO DVD Receiver. Please read this manual thoroughly before making connections and turning on the power. Following the instructions in this manual will enable you to obtain optimum performance and listening enjoyment from your new DVD Receiver. Please retain this manual for future reference.



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WARNING:

TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

CAUTION:

TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



WARNING
RISK OF ELECTRIC SHOCK
DO NOT OPEN

AVIS
RISQUE DE CHOC ELECTRIQUE
NE PAS OUVRIR



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

Important Safeguards

1. **Read Instructions** - All the safety and operating instructions should be read before the appliance is operated.
2. **Retain Instructions** - The safety and operating instructions should be retained for future reference.
3. **Heed Warnings** - All warnings on the appliance and in the operating instructions should be adhered to.
4. **Follow Instructions** - All operating and use instructions should be followed.
5. **Water and Moisture** - The appliance should not be used near water - for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, and the like.
6. **Carts and Stands** - The appliance should be used only with a cart or stand that is recommended by the manufacturer.

PORTABLE CART WARNING

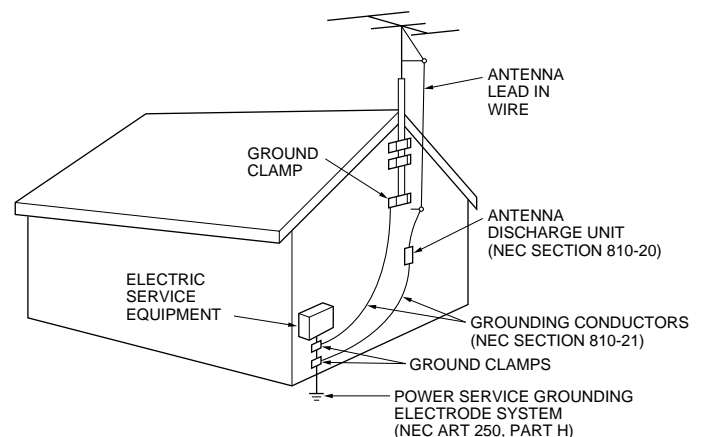


S3125A

7. **Wall or Ceiling Mounting** - The appliance should be mounted to a wall or ceiling only as recommended by the manufacturer.
8. **Ventilation** - The appliance should be situated so that its location or position does not interfere with its proper ventilation. For example, the appliance should not be situated on a bed, sofa, rug, or similar surface that may block the ventilation openings; or if placed in a built-in installation, such as a bookcase or cabinet that may impede the flow of air through the ventilation openings, there should be free space of at least 20 cm (8 in.) and an opening behind the appliance.
9. **Heat** - The appliance should be situated away from heat sources such as radiators, heat registers, stoves, or other appliances (including amplifiers) that produce heat.
10. **Power Sources** - The appliance should be connected to a power supply only of the type described in the operating instructions or as marked on the appliance.
11. **Polarization** - If the appliance is provided with a polarized plug having one blade wider than the other, please read the following information:
The polarization of the plug is a safety feature. The polarized plug will only fit the outlet one way. If the plug does not fit fully into the outlet, try reversing it. If there is still trouble, the user should seek the services of a qualified electrician. Under no circumstances should the user attempt to defeat the polarization of the plug.
12. **Power-Cord Protection** - Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, especially near plugs, convenience receptacles, and the point where they exit from the appliance.
13. **Cleaning** - The appliance should be cleaned only as recommended by the manufacturer.
14. **Power Lines** - An outdoor antenna should be located away from power lines.

15. **Nonuse Periods** - The power cord of the appliance should be unplugged from the outlet when left unused for a long period of time.
16. **Object and Liquid Entry** - Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.
17. **Damage Requiring Service** - The appliance should be serviced by qualified service personnel when:
 - A. The power-supply cord or the plug has been damaged; or
 - B. Objects have fallen, or liquid has been spilled into the appliance; or
 - C. The appliance has been exposed to rain; or
 - D. The appliance does not appear to operate normally or exhibits a marked change in performance; or
 - E. The appliance has been dropped, or the enclosure damaged.
18. **Servicing** - The user should not attempt to service the appliance beyond that described in the operating instructions. All other servicing should be referred to qualified service personnel.
19. **Outdoor Antenna Grounding** - If an outside antenna is connected to the receiver, be sure the antenna system is grounded so as to provide some protection against voltage surges and built up static charges. Article 810 of the National Electrical Code, ANSI/NFPA 70, provides information with regard to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna-discharge unit, size of grounding conductors, location of antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode. See Figure 1.

FIGURE 1:
EXAMPLE OF ANTENNA GROUNDING AS PER NATIONAL ELECTRICAL CODE



NEC - NATIONAL ELECTRICAL CODE

S2898A

This unit contains a semiconductor laser system and is classified as a "CLASS 1 LASER PRODUCT." So, to use this model properly, read this Instruction Manual carefully. In case of any trouble, please contact the store where you purchased the unit. To prevent being exposed to the laser beam, do not try to open the enclosure.

DANGER:

INVISIBLE LASER RADIATION WHEN OPEN AND INTERLOCK FAILED OR DEFEATED. AVOID DIRECT EXPOSURE TO BEAM.

CAUTION:

THIS PRODUCT UTILIZES A LASER. USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.

**"CLASS 1 LASER
PRODUCT"**

1. This unit is a CLASS 1 LASER PRODUCT and employs a laser inside the cabinet.
2. To prevent the laser from being exposed, do not remove the cover. Refer servicing to qualified personnel.

Precautions

For U.S. model

The laser is covered by a housing which prevents exposure during operation or maintenance. However, this product is classified as a Laser Product by CDRH (Center for Devices and Radiological Health) which is a department of the Food and Drug Administration. According to their regulations 21 CFR section 1002.30, all manufactures who sell Laser Products must maintain records of written communications between the manufacturer, dealers and customers concerning radiation safety. If you have any complaints about instructions or explanations affecting the use of this product, please feel free to write to the address on the back page of this manual. When you write us, please include the model number and serial number of your unit.

In compliance with Federal Regulations, the certification, identification and the period of manufacture are indicated on the rear panel.

FCC INFORMATION FOR USER

CAUTION:

The user changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Note to CATV system installer:

This reminder is provided to call the CATV system installer's attention to Article 820-40 of the NEC, ANSI/NFPA 70, which provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

For Canadian model

CAUTION: THIS DIGITAL APPARATUS DOES NOT EXCEED THE CLASS B LIMITS FOR RADIO NOISE EMISSION FROM DIGITAL APPARATUS SET OUT IN THE RADIO INTERFERENCE REGULATIONS OF THE CANADIAN DEPARTMENT OF COMMUNICATIONS.

For models having a power cord with a polarized plug:

CAUTION: TO PREVENT ELECTRIC SHOCK, MATCH WIDE BLADE OF PLUG TO WIDE SLOT, FULLY INSERT.

Modele pour les Canadien

ATTENTION: L'INTERFERENCE RADIO ELECTRIQUE GENEREE PAR CET APPAREIL NUMERIQUE DE TYPE B NE DEPASSE PAS LES LIMITES ENONCEES DANS LE REGLEMENT SUR LES PERTURBATIONS RADIO ELECTRIQUES, SECTION APPAREIL NUMERIQUE, DU MINISTERE DES COMMUNICATIONS.

Sur les modeles dont la fiche est polarisee:

ATTENTION: POUR EVITER LES CHOCS ELECTRIQUES, INTRODUIRE LA LAME LA PLUS LARGE DE LA FICHE DANS LA BORNE CORRESPONDANTE DE LA PRISE ET POUSSER JUSQU'AU FOND.

Precautions

1. Warranty Claim

You can find the serial number on the rear panel of this unit. In case of warranty claim, please report this number.

2. Recording Copyright

Recording of copyrighted material for other than personal use is illegal without permission of the copyright holder.

3. AC Fuse

The fuse is located inside the chassis and is not user-serviceable. If power does not come on, contact your Onkyo authorized service center.

4. Power

WARNING

BEFORE PLUGGING IN THE UNIT FOR THE FIRST TIME, READ THE FOLLOWING SECTION CAREFULLY.

The voltage of the available power supply differs according to country or region. Be sure that the power supply voltage of the area where this unit will be used meets the required voltage (e.g., AC 230 V, 50 Hz or AC 120 V, 60 Hz) written on the rear panel.

Worldwide models are equipped with a voltage selector to conform to local power supplies. Be sure to set this switch to match the voltage of the power supply in your area before plugging in the unit.

5. Do not touch this unit with wet hands

Do not handle this unit or power cord when your hands are wet or damp. If water or any other liquid enters the case, take this unit to an authorized service center for inspection.

6. Location of this unit

- Place this unit in a well-ventilated location. Take special care to provide plenty of ventilation on all sides of this unit especially when it is placed in an audio rack. If ventilation is blocked, this unit may overheat and malfunction.
- Do not expose this unit to direct sunlight or heating units as this unit's internal temperature may rise and shorten the life of the pickup.
- Avoid damp and dusty places and places directly affected by vibrations from the speakers. In particular, avoid placing the unit on or above one of the speakers.
- Be sure this unit is placed in a horizontal position. Never place it on its side or on a slanted surface as it may malfunction.
- When you place this DVD Receiver near a TV, radio, or VCR, the playback picture may become poor and the sound may be distorted. In this case, place the DVD Receiver away from the TV, radio, or VCR.

7. Care

From time to time you should wipe the front and rear panels and the cabinet with a soft cloth. For heavier dirt, dampen a soft cloth in a weak solution of mild detergent and water, wring it out dry, and wipe off the dirt. Following this, dry immediately with a clean cloth.

Do not use rough material, thinners, alcohol or other chemical solvents or cloths since these could damage the finish or remove the panel lettering.

8. Notes on Handling

- When shipping the DVD Receiver, use the original shipping carton and packing materials. For maximum protection, repack the unit as it was originally packed at the factory.
- Do not use volatile liquids, such as insect spray, near the DVD Receiver. Do not leave rubber or plastic products in contact with the DVD Receiver for a long time. They will leave marks on the finish.

- The top and rear panels of the DVD Receiver **may become warm after a long period of use. This is not a malfunction.**
- When the DVD Receiver is not in use, be sure to remove the disc and turn off the power.
- If you do not use the DVD Receiver for a long period, the unit may not function properly in the future. Turn on and use the DVD Receiver occasionally.

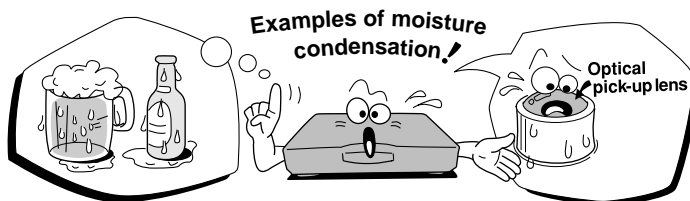
9. To Obtain a Clear Picture

The DVD Receiver is a high technology, precision device. If the optical pick-up lens and disc drive parts are dirty or worn down, the picture quality becomes poor. To obtain a clear picture, we recommend regular inspection and maintenance (cleaning or parts replacement) every 1,000 hours of use depending on the operating environment. For details, contact your nearest dealer.

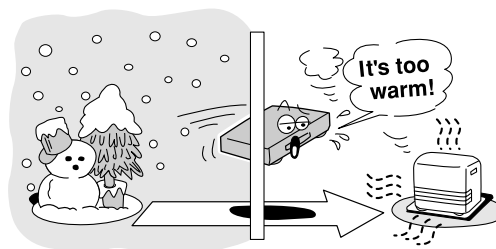
10. Notes on Moisture Condensation

Moisture condensation damages the DVD Receiver.
Please read the following carefully.

Moisture condensation occurs, for example, when you pour a cold drink into a glass on a warm day. Drops of water form on the outside of the glass. In the same way, moisture may condense on the optical pick-up lens inside this unit, one of the most crucial internal parts of the DVD Receiver.



- Moisture condensation occurs in the following cases.
- When you bring the DVD Receiver directly from a cold place to a warm place.
- When you use the DVD Receiver in a room where you just turned on the heater, or a place where the cold wind from the air conditioner directly hits the unit.
- In summer, when you use the DVD Receiver in a hot and humid place just after you move the unit from an air conditioned room.
- When you use the DVD Receiver in a humid place.



- Do not use the DVD Receiver when moisture condensation may occur. If you use the DVD Receiver in such a situation, it may damage discs and internal parts. Remove the disc, connect the power cord of the DVD Receiver to the wall outlet, turn on the DVD Receiver, and leave it for two or three hours. After a few hours, the DVD Receiver will have warmed up and evaporated any moisture. Keep the DVD Receiver connected to the wall outlet and moisture condensation will seldom occur.

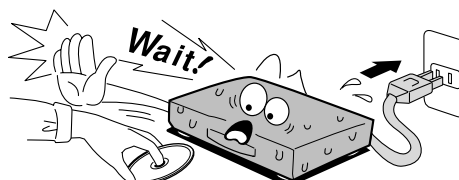


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Features


■ A/V Digital Receiver Features

- All channels 55 watts per channel min. RMS. into 6 ohms two channel driven, 1,000 Hz with no more than 0.2 % total harmonic distortion. (FTC)
- All channels 50 watts per channel min. RMS. into 6 ohms two channel driven, 1,000 Hz (DIN)
- DTS®*, Dolby®** Digital & Dolby Pro Logic™ Decoders
- Cinema Re-EQ™*** Circuitry
- 8 DSP Listening Modes (DTS, Dolby Digital, Dolby Pro Logic, Orchestra, Unplugged, Studio Mix, TV Logic, 5-CH Stereo)
- Full Bandwidth Power to 5 Main Channels
- High-Current, Low-Impedance 6-Ohm Drive
- Oversized Isolated Transformer
- High-Quality, Aluminum-Extruded Heat Sink
- Advanced Delta/Sigma DACs and ADCs
- Late Night Mode
- Bass & Treble Rotary Tone Controls

■ DVD/VIDEO CD/Audio CD Player Features

- Video CD (USA & Asia) and CD Disc Playback Capability
- Digital Audio Output for MD or CD Recording
- Gold-Plated Component Video Outputs (Y, CB, CR)
- High Resolution On-screen Display
- 10-Bit Video D/A Conversion
- Video Black Level Control
- 3-Mode "Zoom-In" Function
- 4-Mode Search (title, DVD chapter, CD track, time)
- Last Memory Play
- Programmed Memory Playback
- 3-Mode Random Memory Playback (title, chapter, track)
- 6-Mode Repeat (title, chapter, track, all tracks, memory, A-B section)
- Slow Motion DVD Playback (1/2, 1/4, or 1/8 normal speed)
- Fast Forward/Reverse (2x, 8x, 30x normal speed)
- Multi Aspect Ratio (16:9 and 4:3)
- Multi Camera Angle
- 8-Language Soundtrack Capability
- 32 Subtitle Languages
- Parental Viewing Control

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*** Re-Equalization and the "Re-EQ" logo are trademarks of Lucasfilm Ltd. Manufactured under license of Lucasfilm Ltd..

- Large Fluorescent Display with 2-Mode Display Dimmer (normal, dim)
- 2 Digital Inputs (1 coaxial, 1 optical)
- S-Video Input and 2 Outputs
- Dedicated Line-Level Subwoofer Pre Out
- Dedicated Line-Level Center Channel Pre Out
- 2 A/V and 2 Audio Inputs
- Full Input/Output Cassette and Video Tape Loops For Easy Dubbing
- Headphone Jack (standard size)
- 1 Switched AC Convenience Outlet
- 1 S-Video Cable and 1 A/V Cable Supplied
- Battery-Free Memory Backup
- Sleep Timer (remote)
- Audio Muting (remote)
- Brushed Aluminum Front Panel
- Programmable Remote Control (with 2 AA batteries supplied)

■ High Fidelity FM/AM Tuner Features

- 30 FM/AM Random Presets
- FM Auto Scan Tuning
- FM Indoor Antenna Supplied
- AM Loop Antenna Supplied

US and foreign patents licensed from Dolby Laboratories Licensing Corporation.

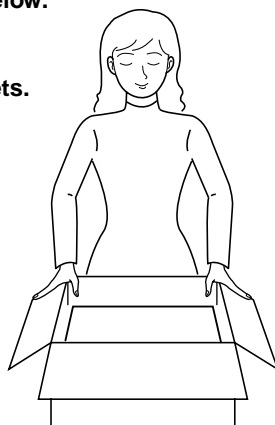
Memory Preservation

This unit does not require memory preservation batteries. A built-in memory power back-up system preserves the contents of the memory during power failures and even when the unit is unplugged. The unit must be plugged in to charge the back-up system.

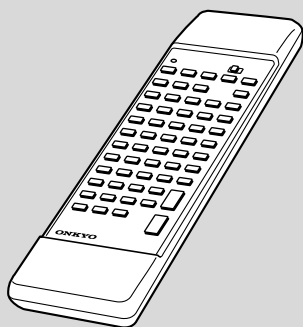
The memory preservation period after the unit has been unplugged varies depending on climate and placement of the unit. On average, memory contents are protected over a period of a few weeks after the time the unit was unplugged. This period is shorter when the unit is exposed to a very humid climate.

Supplied Accessories

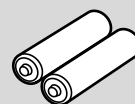
Make sure your box contains everything listed below.
If any pieces are missing, contact your nearest
ONKYO dealer.
The number of accessories is indicated in brackets.



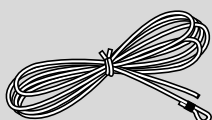
Remote controller (RC-399M) [1]



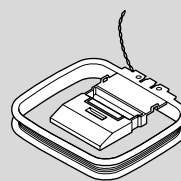
Batteries (size AA/UM-3) [2]



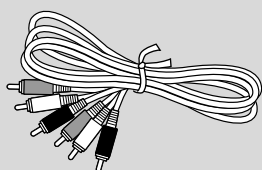
FM antenna [1]



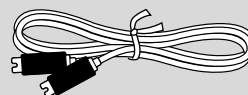
AM loop antenna [1]



Audio/video connection cable [1]



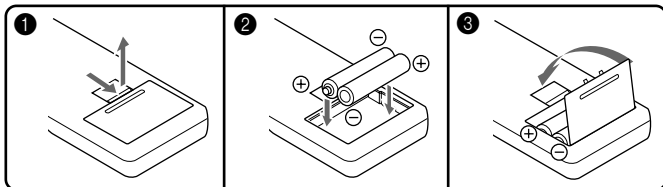
S video cable [1]



Preparing the Remote Controller

Inserting the Batteries

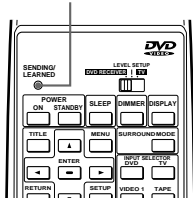
- 1 Detach the battery cover.
- 2 Insert the two R6 (size AA) batteries.
Be sure to match the + and – ends of the batteries with the diagram inside the battery compartment.
- 3 Attach the battery cover.



Notes

- When the batteries are getting weak, the SENDING/LEARNED indicator on the remote controller starts flashing. In this case, replace the batteries with new ones.
For the other functions of this indicator, see "Pointing the remote controller in the right direction" on the right, and page 60.
- Do not mix new batteries with old batteries or different kinds of batteries.
- To avoid corrosion, remove the batteries if the remote controller is not to be used for a long time.
- Remove dead batteries immediately to avoid damage from corrosion. If the remote controller does not operate smoothly, replace both the batteries at the same time.
- The life of the batteries supplied is about six months but this will vary depending on usage.

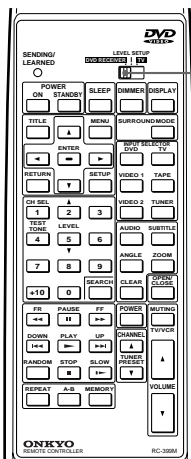
SENDING/
LEARNED indicator



Using the Remote Controller

■ Setting the DVD RECEIVER/LEVEL SETUP/TV switch to the right position

Some buttons on the remote controller have two functions. The DVD RECEIVER/LEVEL SETUP/TV switch changes these functions as follows.



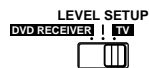
DVD RECEIVER/LEVEL SETUP/TV switch



Normally set the switch to DVD RECEIVER.
Most of the operations can be used when the switch is set to this position.



Set the switch to LEVEL SETUP when adjusting each speaker's relative volume balance.
See pages 19 and 32.



Set the switch to TV when you wish to control your TV.
Before you start using this function, you need to copy the signal patterns of the TV's remote control buttons to the DVD Receiver's remote controller. See page 60.

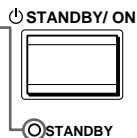
■ Pointing the remote controller in the right direction

Point the remote controller toward the remote control sensor.

STANDBY indicator

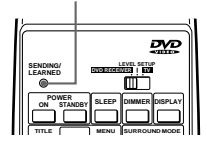
(as remote control reception indicator)

The STANDBY indicator lights up when the DVD Receiver receives a signal from the remote controller. For the other functions of this indicator, see page 17.



This indicator is lit while any button on the remote controller is pressed.

SENDING/
LEARNED
indicator



Remote control sensor

30° 30°
About 16 feet (5 m)

Notes

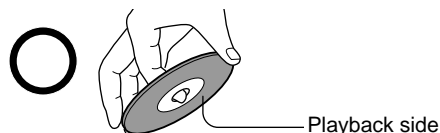
- Place the unit away from strong light such as direct sunlight or inverted fluorescent light which can prevent proper operation of the remote controller.
- Using another remote controller of the same type in the same room or using the unit near equipment which uses infrared rays may cause operational interference.
- Do not put any object such as a book on the remote controller. The buttons of the remote controller may be pressed by mistake and drain the batteries.
- Make sure the audio rack doors do not have colored glass. Placing the unit behind such doors may prevent proper remote controller operation.
- If there is any obstacle between the remote controller and the remote control sensor, the remote controller will not operate.

Notes on Discs

This section shows you how to handle, clean, and store discs.

On Handling Discs

- Do not touch the playback side of the disc.

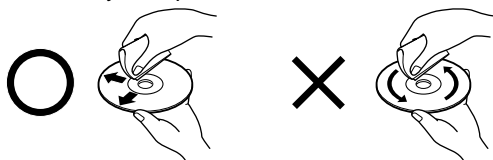


- Do not attach paper or tape to discs.



On Cleaning Discs

- Fingerprints and dust on the disc cause picture and sound deterioration. Wipe the disc from the center outwards with a soft cloth. Always keep the disc clean.



- If you cannot wipe off the dust with a soft cloth, wipe the disc lightly with a slightly moistened soft cloth and finish with a dry cloth.
- Do not use any type of solvent such as thinner, benzene, commercially available cleaners or antistatic spray for vinyl LPs. It may damage the disc.

On Storing Discs

- Do not store discs in a place subject to direct sunlight or near heat sources.
- Do not store discs in places subject to moisture and dust such as a bathroom or near a humidifier.
- Store discs vertically in a case. Stacking or placing objects on discs outside of their case may cause warping.

About This Instruction Manual

This instruction manual explains the basic procedures for operating of this DVD Receiver. Some DVD videos are produced in a manner that allows specific or limited operation during playback. As such, the DVD Receiver may not respond to all operating commands. Refer to instruction notes on discs. A "⊘" mark may appear on the TV screen during operation. The "⊘" mark means that the operation is not permitted by the DVD Receiver or the disc.

Notes on Region Numbers

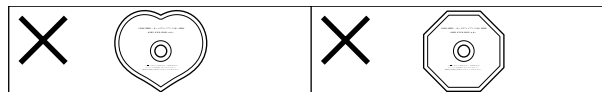
The region number of this DVD Receiver is 1. If region numbers, which stand for their playable area, are printed on your DVD video and you do not find or , disc playback will not be allowed by the DVD Receiver. (In this case, the DVD Receiver displays a message.)

Playable Discs

This DVD Receiver can play back the following discs.

	Disc mark	Contents	Disc size	Maximum playback time
DVD videos		Audio + Video (moving pictures)	12 cm	Approx. 4 hours (single sided disc)
				Approx. 8 hours (double sided disc)
			8 cm	Approx. 80 minutes (single sided disc)
				Approx. 160 minutes (double sided disc)
VIDEO CDs		Audio + Video (moving pictures)	12 cm	Approx. 74 minutes
			8 cm	Approx. 20 minutes
Audio CDs		Audio	12 cm	Approx. 74 minutes
			8 cm (CD single)	Approx. 20 minutes

- You cannot play back discs other than those listed above.
- You cannot play discs such as CD-R, CD-RW, CD-ROM, DVD-RAM, DVD-RW, etc., even if the marks in the above table are labeled on those discs.
- This DVD Receiver uses the PAL/NTSC color system, and cannot play back DVD videos recorded in any other color system (SECAM, etc.).
- Avoid using heart-shaped or octagonal discs. Playing irregularly shaped discs may damage the internal mechanism of the DVD Receiver.



- Do not use discs on which adhesive from adhesive tape or a disc label (if it is a rental disc) remains. Otherwise, you may not be able to eject the discs or the DVD Receiver may become inoperative.

On VIDEO CDs

This DVD Receiver supports VIDEO CDs equipped with the PBC (Version 2.0) function. (PBC is the abbreviation of Playback Control.) You can enjoy two playback variations depending on the type of disc.

- VIDEO CD not equipped with PBC function (Version 1.1)**
Sound and movies can be played on this DVD Receiver in the same way as an audio CD.
- VIDEO CD equipped with PBC function (Version 2.0)**
In addition to operation of the VIDEO CD not equipped with the PBC function, you can enjoy playback with interactive software and with search function by using the menu displayed on the TV screen (Menu Playback). Some of the functions described in this Instruction Manual may not work with some discs.

Notes on Copyright

It is forbidden by law to copy, broadcast, show, broadcast on cable, play in public, and rent copyrighted material without permission.

DVD videos are copy protected, and any recordings made from these discs will be distorted.

This product incorporates copyright protection technology that is protected by method claims of certain U.S. patents and other intellectual property rights owned by Macrovision Corporation and other rights owners. Use of this copyright protection technology must be authorized by Macrovision Corporation, and is intended for home and other limited viewing uses only unless otherwise authorized by Macrovision Corporation. Reverse engineering or disassembly is prohibited.

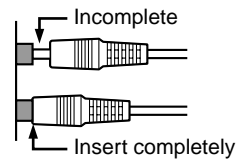
Connecting to a TV

Before connecting

- Refer also to the instruction manual of the TV.
- When you connect the DVD Receiver to the TV, be sure to turn off the power and unplug both the units from the wall outlets before making any connections.
- Connect the DVD Receiver to the TV directly. If you connect the DVD Receiver to a VCR, TV/VCR combination or video selector, the playback picture may be distorted as DVD videos are copy protected.

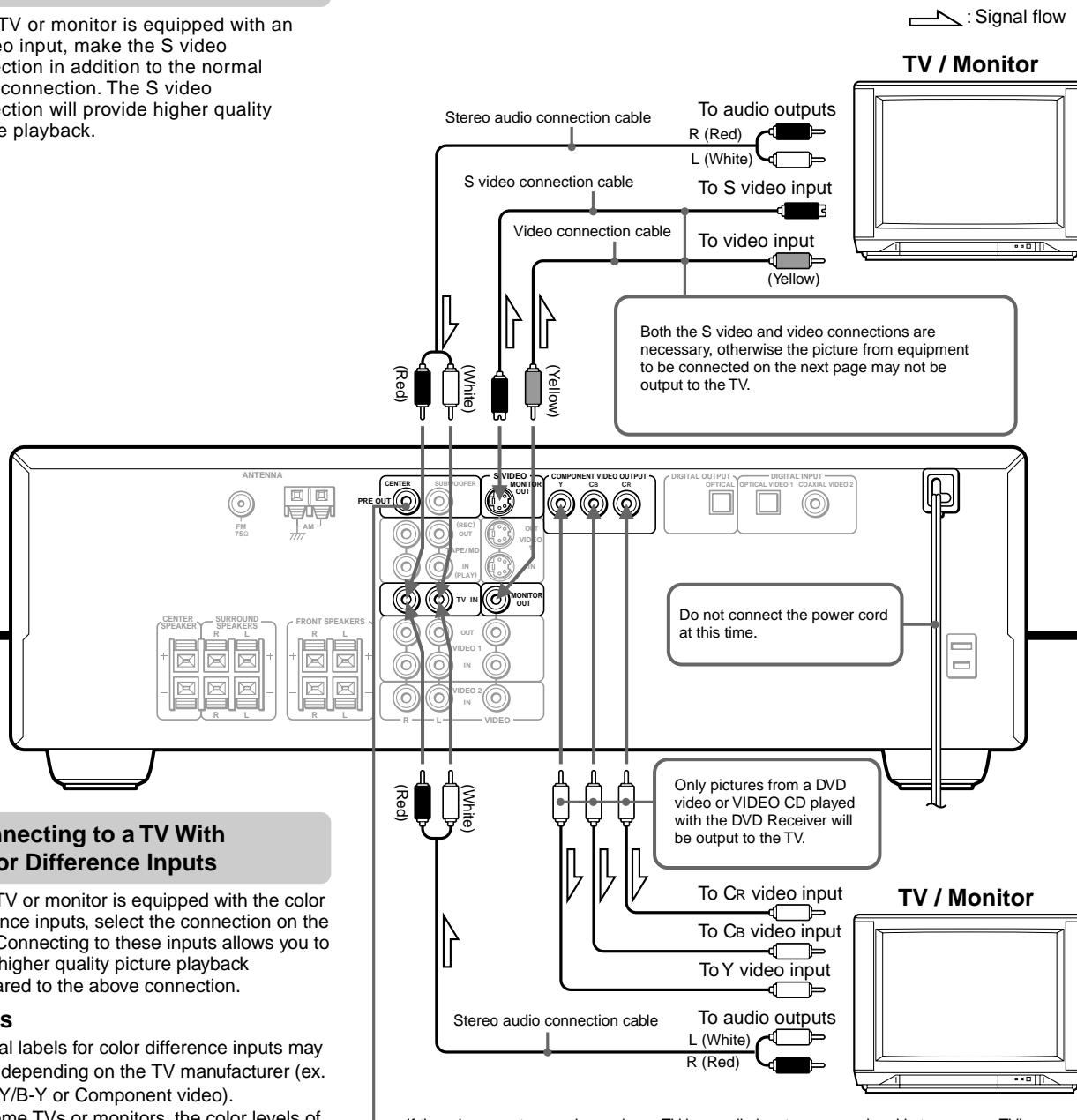
- Connect the plugs securely.

- Note that one audio/video connection cable and one S video connection cable are supplied.



Connecting to a TV Without Color Difference Inputs

If the TV or monitor is equipped with an S video input, make the S video connection in addition to the normal video connection. The S video connection will provide higher quality picture playback.



Connecting to a TV With Color Difference Inputs

If the TV or monitor is equipped with the color difference inputs, select the connection on the right. Connecting to these inputs allows you to enjoy higher quality picture playback compared to the above connection.

Notes

- Actual labels for color difference inputs may vary depending on the TV manufacturer (ex. Y/R-Y/B-Y or Component video).
- In some TVs or monitors, the color levels of the playback picture may be reduced slightly or the tint may change. In such a case, adjust the TV or monitor for optimum performance.

If there is no center speaker and your TV has audio inputs, you may be able to use your TV's speaker(s) as the center speaker(s). If you connect the TV to this jack, you need to set up the TV speaker(s) as the center speaker(s) following steps in "Speaker Setup" on page 18.

Caution

You may need to maximize the volume of the TV speaker(s) when you carry out steps in "Speaker Setup." Be sure to turn down the volume of the TV speaker(s) before changing the TV source input and using the TV speaker(s) as a normal TV speaker(s).

Signal flow

Getting Started



Connecting Speakers

Before connecting

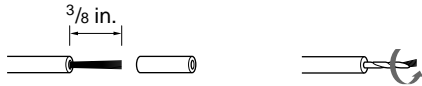
- Refer also to the instruction manuals of the speakers.
- This DVD Receiver is designed to reproduce optimum sound quality when speakers with impedances within the ranges specified below are connected. Please check the following information and choose speakers with appropriate impedances for the connections.

Front speakers: 6 ohms min. per speaker

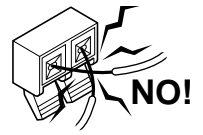
Center speaker: 6 ohms min.

Surround Speakers : 6 ohms min. per speaker

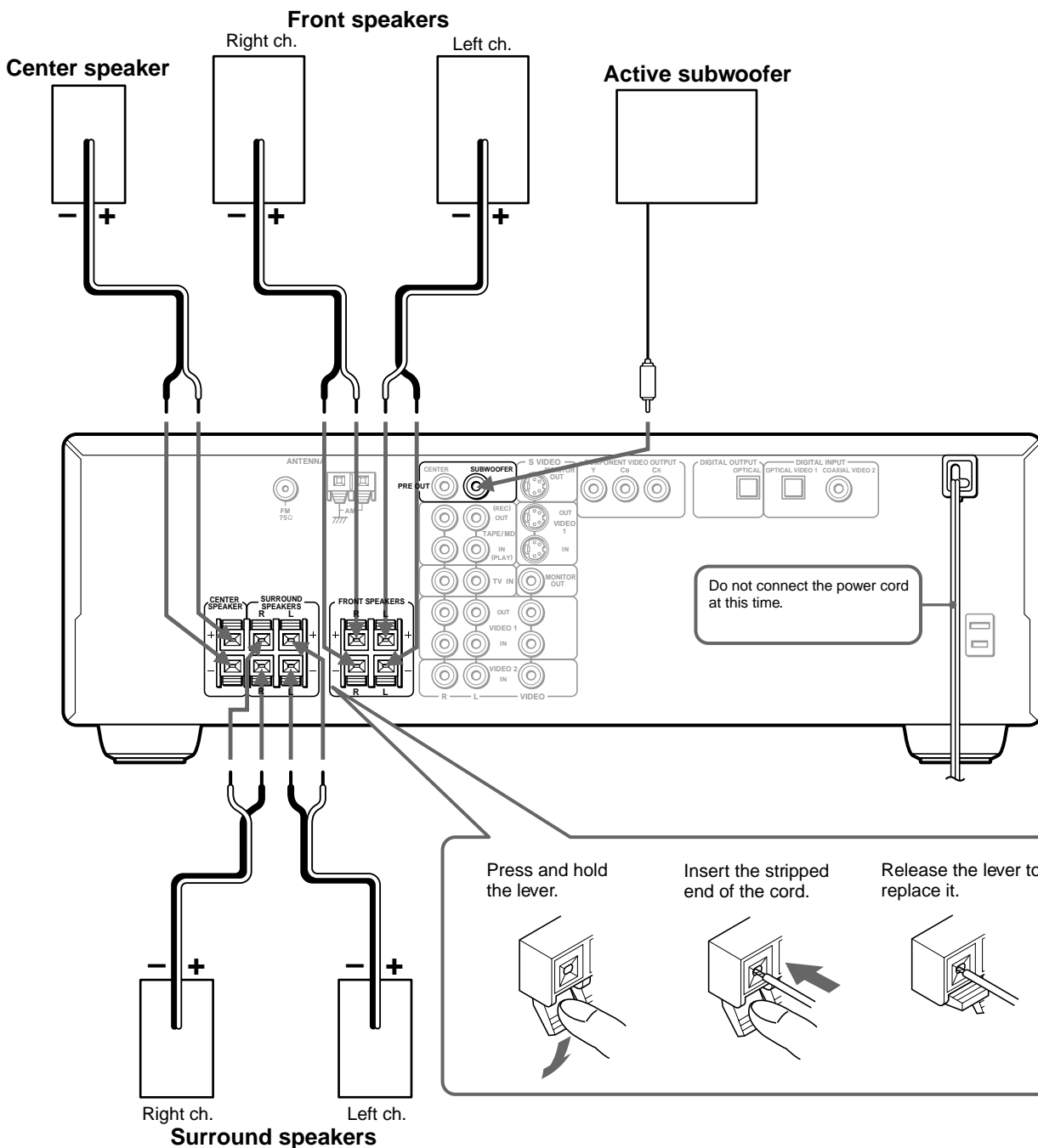
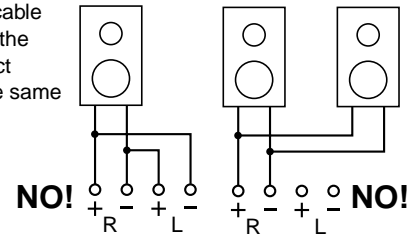
- Strip $\frac{3}{8}$ in. (10 mm) from the end of each cord, then twist the exposed wires tightly.



- To prevent damage to circuits, never short-circuit the positive (+) and negative (-) speaker wires.



- Do not connect the speaker cable to the L and R connectors at the same time and do not connect more than one speaker to the same speaker connectors.



Positioning Speakers

Speaker placement plays an important role in the reproduction of Surround sound. The placement of the speakers varies depending on the size of the room and the wall coverings used in the room. The illustration below shows an example of a layout for standard speaker placement. Refer to this example when you position the speakers in order to experience the best of Surround sound.

■ Standard speaker placement

For ideal Surround effects, all speakers should be installed. If a center speaker or subwoofer is not connected, the sound from the unused channel is properly distributed to the connected speakers in order to reproduce the best Surround sound possible.

Front

The left, right, and center speakers should face the seated listener and be placed at ear level. The center speaker reproduces a richer sound image by enhancing the perception of the sound's source and movement.

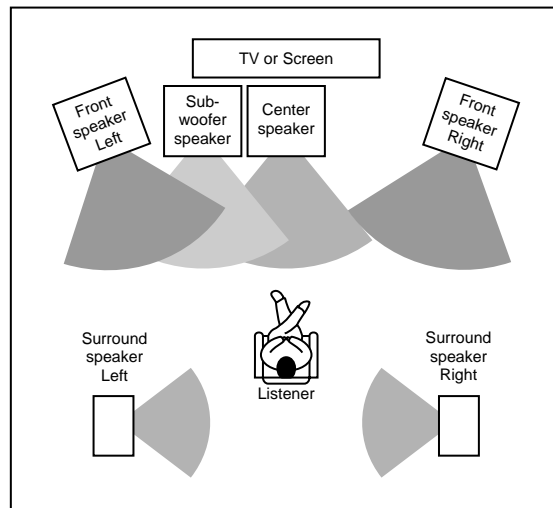
Surround

Place the left and right Surround speakers 1 meter (3 feet) above the listener's ear level and facing toward the sides of the room, making sure that the listener is within the speakers' dispersion angle. These speakers reproduce the feel of a moving sound while creating the sensation of being in the middle of the action.

Subwoofer

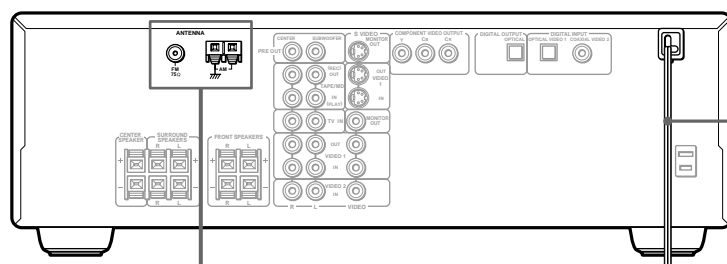
Install a subwoofer with a built-in power amplifier for powerful bass sounds. The placement of the subwoofer does not affect the final quality of the sound image too much, so you can install it wherever it is convenient.

Refer to the speakers' instruction manual for more details.



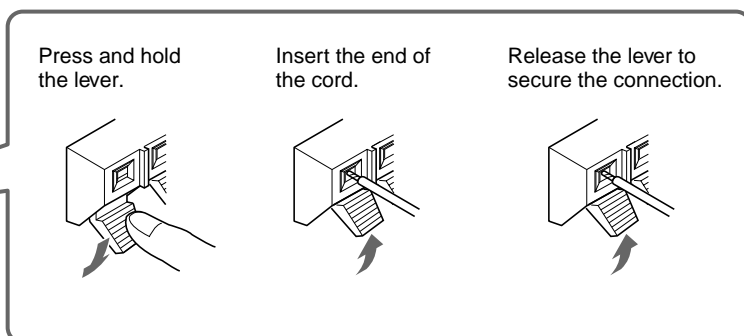
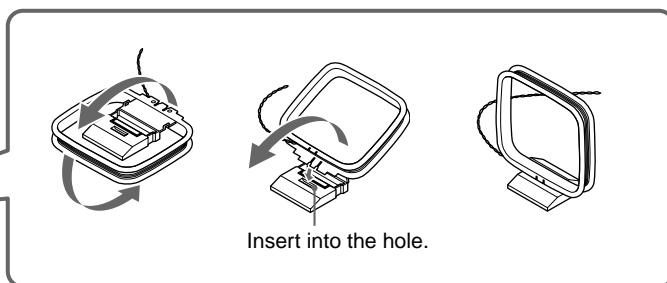
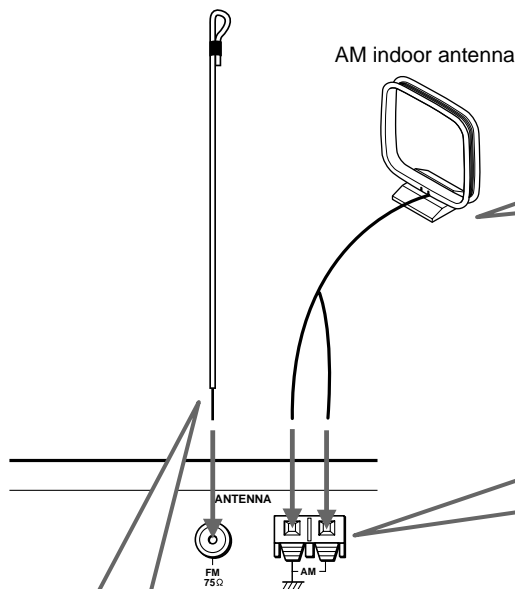
Making Antenna Connections

Connecting the Supplied FM and AM Indoor Antennas

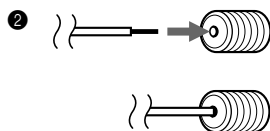


FM indoor antenna

AM indoor antenna



Remove the insulation at the end of the cable (①), then fully insert the stripped end of the cable (②).



■ Adjusting the position of the AM indoor antenna

While listening to an AM program (see page 26), set the antenna in the direction and position where you receive the clearest sound. Put it as far away as possible from the unit, TVs, speaker cables, and power cords.

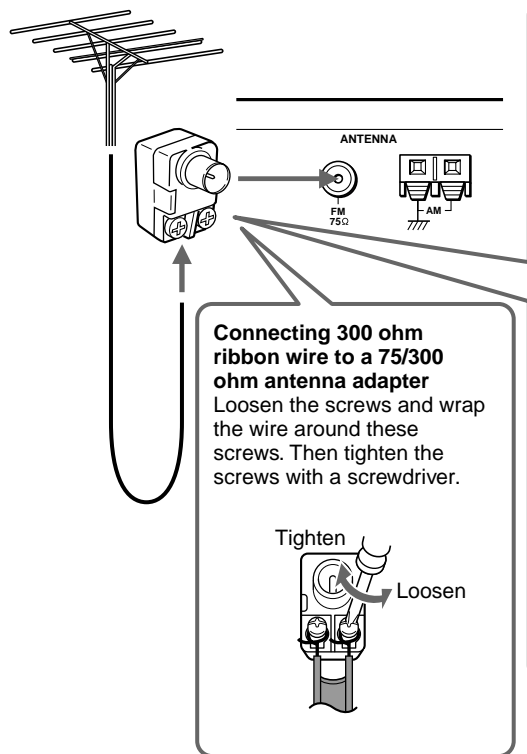
■ Adjusting the position of the FM indoor antenna

While listening to an FM program (see page 26), extend the antenna and move it in various directions until the clearest signal is received, then secure the antenna with push pins in the position with the least distortion.

Connecting FM Outdoor Antenna

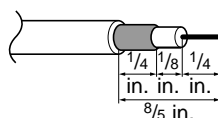
If the FM reception is not very clear with the supplied antenna, connect the outdoor FM outdoor antenna instead of FM indoor antenna.

FM outdoor antenna

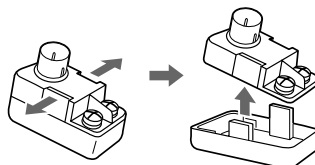


Connecting coaxial cable to a 75/300 ohm antenna adapter

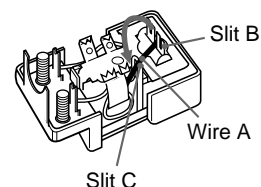
① Strip the end of the coaxial cable.



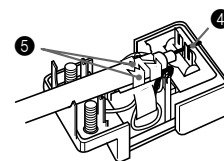
② With your fingernail or a small screwdriver, press the stoppers outward and remove the cover.



③ Remove the transformer wire A from slit B and insert it into slit C.



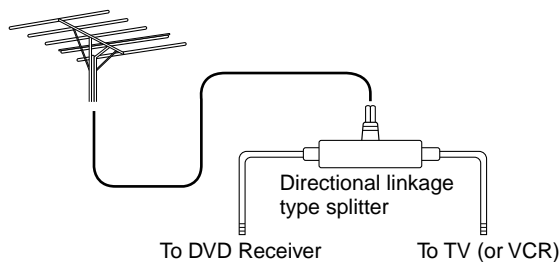
④ Insert the end of the cable.
⑤ Clamp it in place with pliers.



⑥ Reinstall the cover.

■ Directional linkage

Do not use the same antenna for both FM and TV (or VCR) reception since the FM and TV (or VCR) signals can interfere with each other. If you must use a common FM/TV (or VCR) antenna, use a directional linkage type splitter.



Notes

- Keep the antenna away from noise sources (neon signs, busy roads, etc.).
- It is dangerous to put the antenna close to power lines. Keep it well away from power lines, transformers, etc.
- To avoid the risk of lightning and electrical shock, grounding is necessary. Follow item 19 of the "Important Safeguards" on page 2 when you install the outdoor antenna.

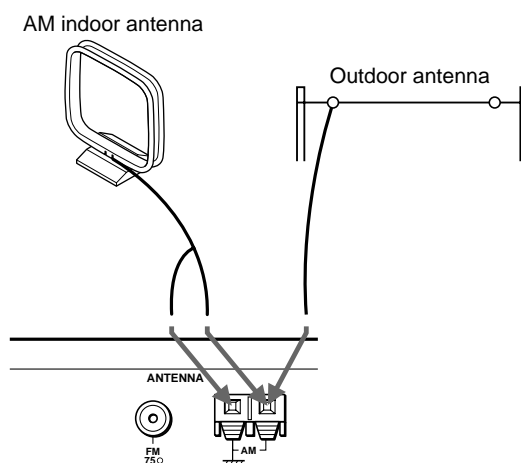
Connecting an AM Outdoor Antenna

The outdoor antenna will be more effective if it is stretched horizontally above a window or outside.

Leave the supplied AM indoor antenna connected.

Note

To avoid the risk of lightning and electrical shock, grounding is necessary. Follow item 19 of the "Important Safeguards" on page 2 when you install the outdoor antenna.



Connecting to AC OUTLET on the Rear Panel

You can connect the power cord of another audio/video component to the AC outlet (AC OUTLET) on the rear panel of the DVD Receiver.

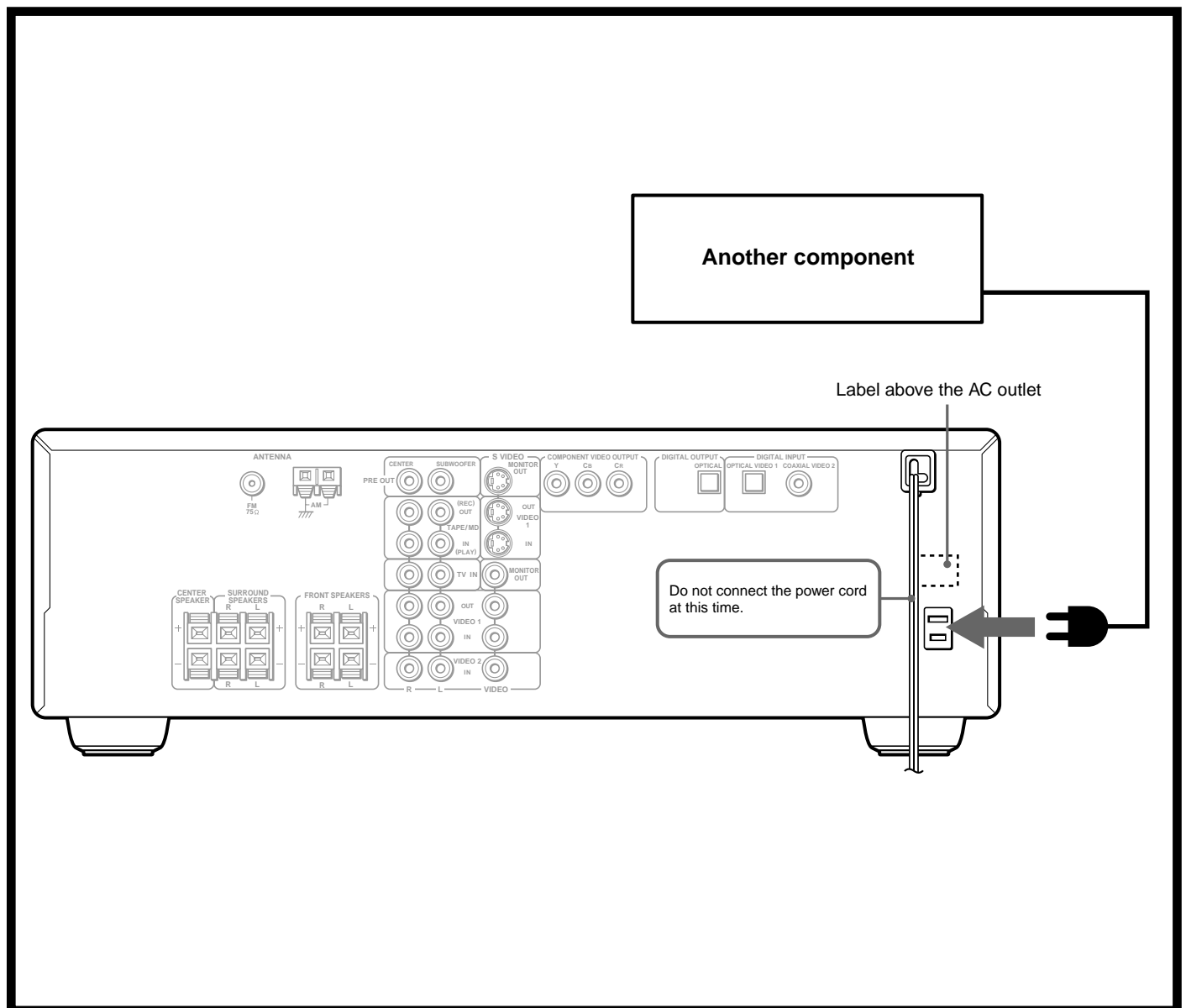
The power supply to AC OUTLET stops:

- When the main power of the DVD Receiver is switched off (see next page) or
- When the DVD Receiver is in standby mode (see next page).

Using this function, you can turn on and turn off the audio/video component connected to AC OUTLET with this DVD Receiver if you leave the component's power switch on.

Before connecting

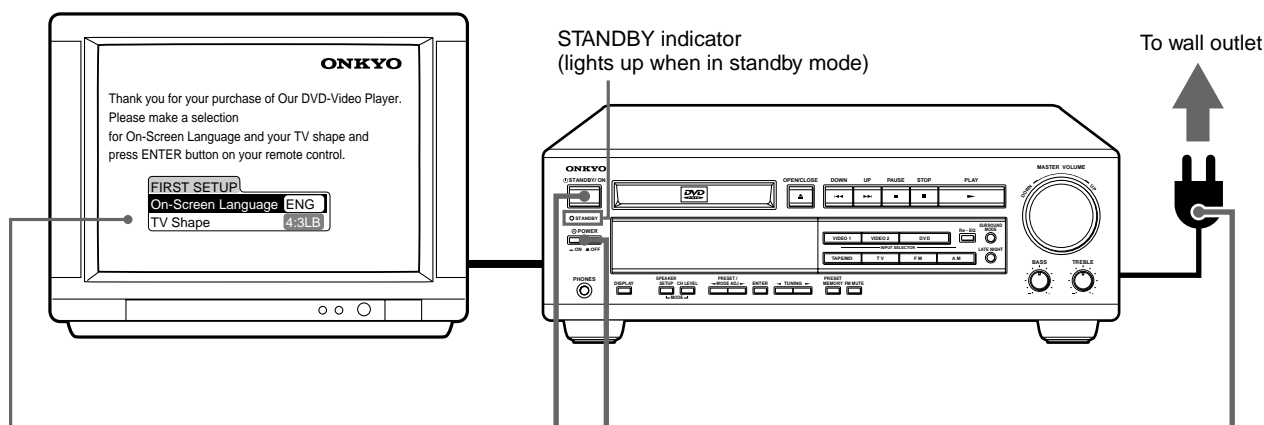
- Make sure that the power supply voltage and frequency of the component to be connected match the power requirements indicated on the label above the AC outlet.
- Make sure that the power consumption of the component to be connected does not exceed the power supply capacity indicated on the label above the AC outlet.



Connecting the Power/Turning on the DVD Receiver

Before connecting

- Make sure that all the connections from pages 10 to 16 are completed (the connection to the TV is required).
- Turning on the DVD Receiver may cause a momentary power surge, which might interfere with other electrical equipment such as computers. If this happens, use a wall outlet on a different circuit.



1 Connect the power cord to the wall outlet.

2 Press the **POWER** switch to switch on the main power.

The DVD Receiver enters standby mode.
The STANDBY indicator lights up.

Notes

- The buttons on the remote controller don't operate if the POWER switch is set to OFF.
- To switch off the main power, press the POWER switch again.

3 Press **STANDBY/ON** on the DVD Receiver or **POWER ON** on the remote controller.

The DVD Receiver turns on. The STANDBY indicator goes off.

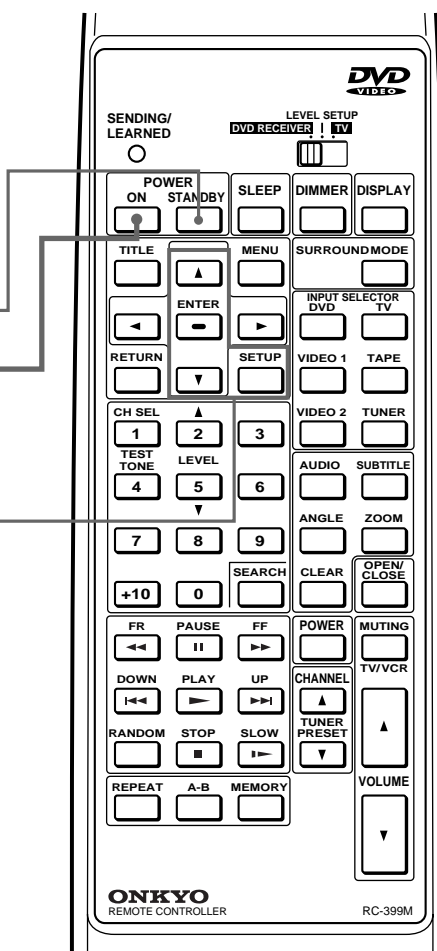
The first time you turn on the DVD Receiver, the First Setup screen appears. With the First Setup screen, select the On-Screen Language and TV Shape according to the aspect ratio of the TV screen (see pages 46 and 48).

- 1 Press **▲/▼** to select "On-Screen Language" then press **ENTER**.
- 2 Select a language with **▲/▼**, then press **ENTER**.
- 3 Press **▼** to select "TV Shape" then press **ENTER**.
- 4 Select a picture size with **▲/▼** then press **ENTER**.
- 5 Finally press **SETUP**.

All your selections are set and the First Setup screen disappears.

Notes

- To turn off the DVD Receiver, press **STANDBY/ON** on the DVD Receiver, or **POWER STANDBY** on the remote controller. The DVD Receiver enters standby mode. Be sure to set the volume to minimum before turning off the DVD Receiver.
- You can change the above settings later with "Customizing the Function Settings" on page 44.



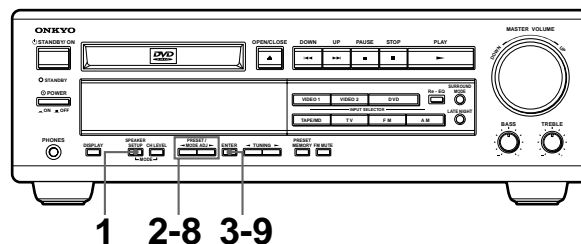
Speaker Setup

Before operating your stereo system, you need to set up the speaker configuration and the distance from the listening position to each speaker.

Note

It is not necessary to set the parameters again once you have completed the setup (with one exception*) unless you change the speaker configuration.

* See "To Listen to a High-Frequency/High-Quantization Format Source in its Original Sound Quality – 96k Sound" on page 40.



1

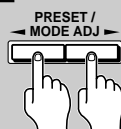


Press **SPEAKER SETUP** to display the subwoofer configuration.

The subwoofer configuration appears in the DVD Receiver's display.

SUB WFR: NO

2



Press **MODE ADJ** ◀ / ▶ to select either "YES" (when a subwoofer is connected) or "NO" (when no subwoofer is connected).

SUB WFR: YES

If you select "NO," the configuration of the front speakers is automatically set to "LARGE." In this case, skip the next step and go to step 4.

3



Press **ENTER**, then press **MODE ADJ** ◀ / ▶ to select either "LARGE" (when large-wideband-front speakers are connected) or "SMALL" (when small-with limited bass signal handling-front speakers are connected).

FRONT : LARGE

4



Press **ENTER**, then press **MODE ADJ** ◀ / ▶ to select either "LARGE" (when a large center speaker is connected), "SMALL" (when a small center speaker is connected), or "NONE" (when no center speaker is connected).

CENTER: SMALL

Note

If the front speaker configuration is set to "SMALL" in step 3, "LARGE" will not appear in this step.

5



Press **ENTER**, then press **MODE ADJ** ◀ / ▶ to select either "LARGE" (when large surround speakers are connected), "SMALL" (when small surround speakers are connected), or "NONE" (when no surround speakers are connected).

SUR : SMALL

Note

If the front speaker configuration is set to "SMALL" in step 3, "LARGE" will not appear in this step.

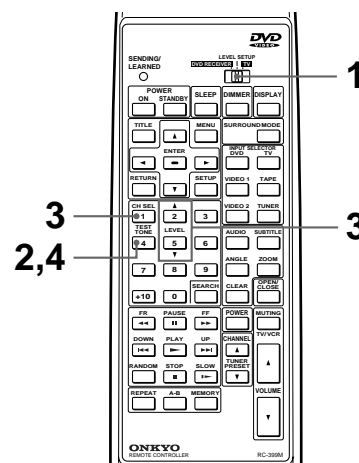
6



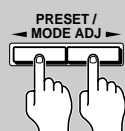
Press **ENTER**, then press **MODE ADJ** ◀ / ▶ repeatedly to enter the distance between your listening position and one of the front speakers.

FRONT : 3.6m: 12"

- Set the value closest to the actual distance.
The distance from the listening position to one of the front speakers must be the same as the distance to the other speaker.
- To increase the value, press **MODE ADJ** ▶.
- To decrease the value, press **MODE ADJ** ◀.
- You can select a distance between 0.3 ft. and 30 ft. (1 and 9 m).



7



Press **ENTER**, then press **MODE ADJ** ◀/▶ repeatedly to enter the distance between your listening position and the center speaker.

CENTER: 3.0m: 10"

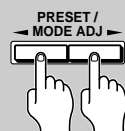
You cannot enter the following distances:

- Distances larger than the distance set for the front speakers.
- Distances smaller than the distance obtained by subtracting "5 ft. (1.5 m)" from the distance entered for the front speakers.

Note

If the center speaker configuration is set to "NONE" in step 4, this step will be skipped.

8



Press **ENTER**, then press **MODE ADJ** ◀/▶ repeatedly to enter the distance between your listening position and one of the surround speakers.

SUR. : 2.1m: 7"

- The distance from the listening position to one of the surround speakers must be the same as the distance to the other speaker.
- You cannot enter the following distances:
 - Distances larger than the distance set for the front speakers.
 - Distances smaller than the distance obtained by subtracting "15 ft. (4.5 m)" from the distance entered for the front speakers.

Note

If the surround speaker configuration is set to "NONE" in step 5 this step will be skipped.

9



Press **ENTER**.
The normal display appears.

Adjusting Each Speaker's Relative Volume Balance – Test Tone

If headphones are connected, remove the headphones.

1



Slide the **DVD RECEIVER/LEVEL SETUP/TV** switch to **LEVEL SETUP**.

2

**Press TEST TONE.**

Each speaker emits the test tone (pink noise) in the following order:

LEFT (Front left ch.)	→	CENTER (Center ch.)
↑		↓
SUBWFR (Subwoofer)		RIGHT (Front right ch.)
↑		↓
L-SUR. (Surround left ch.)	←	R-SUR. (Surround right ch.)

LEFT

Note

The speaker whose configuration is set to "NO" or "NONE" will be skipped.

3



Press **CH SEL** repeatedly to select the speaker, then press **LEVEL** ▲/▼ to raise or lower the volume level until you have an equal volume balance with the other speakers at your listening position.

The volume level can be adjusted between -12dB and +12dB.

4



When you have completed the adjustment, press **TEST TONE**.

Note

Set the **DVD RECEIVER/LEVEL SETUP/TV** switch to **DVD RECEIVER** for normal use of the remote controller.


Playing DVD Videos/VIDEO CDs/Audio CDs


This section shows you the basics on how to play discs.


Before playing

- DVD Videos, VIDEO CDs, and audio CDs can be played with the DVD Receiver (see "Playable discs" on page 9). Do not play anything else.
- When playing DVD videos or VIDEO CDs, turn on the TV and set the TV to the video input connected to MONITOR OUT or S VIDEO MONITOR OUT connector on the DVD Receiver.

About the , , and  marks in the pages related to DVD video/VIDEO CD/audio CD operation

 means "The function or title is related to DVD operation."

 means "The function or title is related to VIDEO CD operation."

 means "The function or title is related to audio CD operation."

Basic Playback

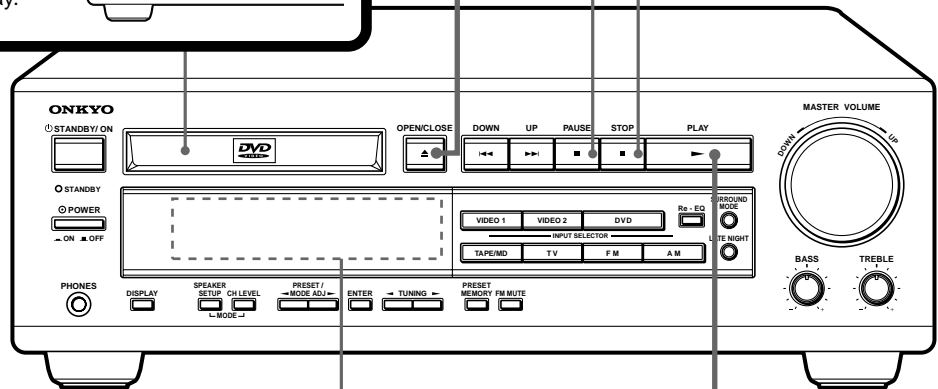
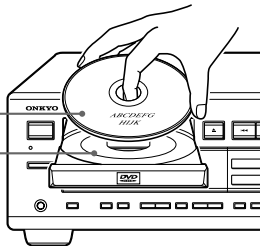
1 Press OPEN/CLOSE.

The disc tray opens.

If the DVD Receiver is in standby mode when the button is pressed, it turns on and the disc tray opens.

2 Place the disc on the disc tray.

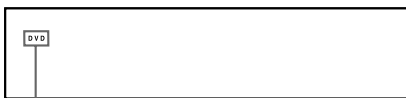
Put the disc in the tray with the label side facing up.
There are two different disc sizes. Place the disc in the correct guide on the disc tray.



3 Press PLAY.

The disc tray closes and playback starts.

If you press OPEN/CLOSE to close the tray after step 2, playback may automatically start depending on the disc.




The type of the inserted disc appears.
For the other information that appears in the display, see pages 42 and 43.

CAUTION


Keep your fingers well clear of the disc tray as it is closing.
Neglecting to do so may cause serious personal injury.

If a title menu appears on the TV screen

 The DVD video has a title menu, or the VIDEO CD is equipped with the PBC (Playback Control) function. Follow steps 2 and 3 in "Locating a Title Using the Title Menu" on page 23.

For details about the PBC function, see "On VIDEO CDs" on page 9. To start playback with or without using the PBC function, see page 56.

If a sound selection menu appears on the TV screen

See "Enjoying the Sound Effects" to select the appropriate sound using , then press ENTER (see the illustration of the remote controller on the opposite page).

For example, if you need to select either "DTS" or "Stereo," select "DTS" since the DVD Receiver is able to reproduce DTS (Digital Theater System) Surround sound.

If the sound is not reproduced from the beginning of the disc

See "Notes" on the opposite page.

DVD If the screen on the right appears – **Screen Saver**

If you pause a picture for a long while, the screen saver operates. (You can set this function to Off. See page 53.) To resume normal display, press PLAY.



DVD **Tip to obtain a higher quality picture**

Occasionally, some picture noise not usually visible during a normal broadcast may appear on the TV screen while playing a DVD video because the high resolution pictures on these discs include a lot of information. While the amount of noise depends on the TV you use, you should generally adjust the TV to reduce sharpness when viewing DVD videos.

■ To remove the disc

DVD VCD CD

Press OPEN/CLOSE to open the disc tray.

Remove the disc after the disc tray opens completely. After removing the disc, be sure to press the button again to close the tray.

■ To pause playback (still mode)

DVD VCD CD

Press PAUSE during playback.

To start playback, press PLAY.

DVD **To play frame by frame**

VCD Press the button repeatedly during pause. Each time you press the button the picture advances one frame. To resume normal playback, press PLAY.

Note

The sound is muted during still mode and frame by frame playback.

■ To stop playback

DVD VCD CD

Press STOP.

When you press PLAY to restart playback, playback starts from the location where you stopped playback because the location index is stored in memory.

Note

The location where playback resumes may vary depending on the disc.

Resuming playback from the beginning

Press STOP again after stopping playback to clear the location index memory, then press PLAY to start playback.

DVD Playback starts from the beginning of the current title. To start playback from the beginning of the DVD video, open and close the disc tray (press OPEN/CLOSE twice) then press PLAY to start playback.

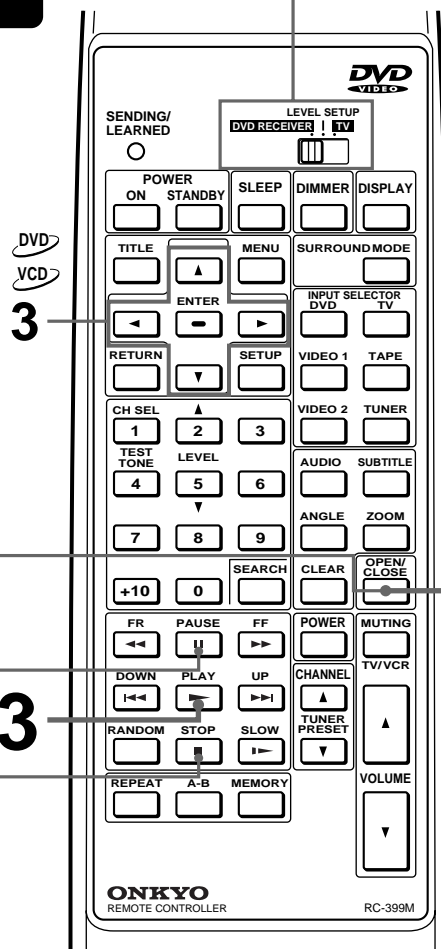
VCD **CD** Playback starts from the beginning of the disc.

Note

The location index memory will also be cleared when:

- The power cord is unplugged,
- The DVD Receiver has entered standby mode,
- The disc tray is opened, and
- The parental lock setting is changed (see page 54) or a disc menu language is selected (see page 46).

This switch must be set to DVD RECEIVER.



Notes

- When you start playing a CD, the sound may not be reproduced briefly while the DVD Receiver recognizes the sound system (DTS Surround or PCM). If this happens, stop playback by pressing STOP twice, then press PLAY to restart playback. The sound will be reproduced from the beginning of the disc.
- Do not move the DVD Receiver during playback. Doing so may damage the disc.
- Use OPEN/CLOSE on the remote controller or DVD Receiver to open and close the disc tray. Do not touch the disc tray while it is moving. Doing so may cause the DVD Receiver to malfunction.
- Do not press down on the disc tray or put any objects other than playable discs on the disc tray. Doing so may cause the DVD Receiver to malfunction.
- In many instances, a menu screen appears when playback of a movie is complete. Prolonged display of an on-screen menu may damage your television set, permanently etching that image onto its screen. To avoid this, be sure to press STOP once the movie is complete.

(Continued on next page.)

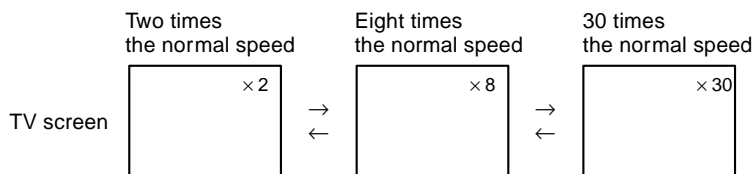
Playing DVD Videos/VIDEO CDs/Audio CDs (continued)

■ To play in fast reverse or fast forward

DVD VCD CD

Press FR or FF during playback.

DVD The playback speed becomes two times the normal speed. Each press of FR (Fast Reverse) or FF (Fast Forward) changes the playback speed as follows:

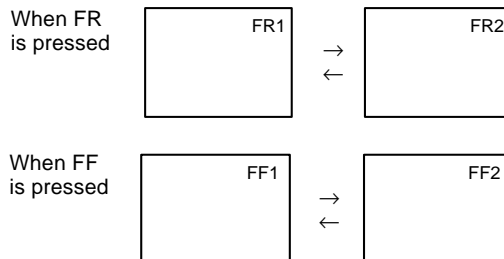


Notes

- No sound is reproduced and no subtitles appear during fast forward or reverse playback.
- The ×2, ×8, and ×30 speeds are only approximate speeds. These speeds may vary slightly from disc to disc.

VCD **CD** Each time you press FR (Fast Reverse) or FF (Fast Forward), the fast reverse or fast forward playback speed alternates with the other.

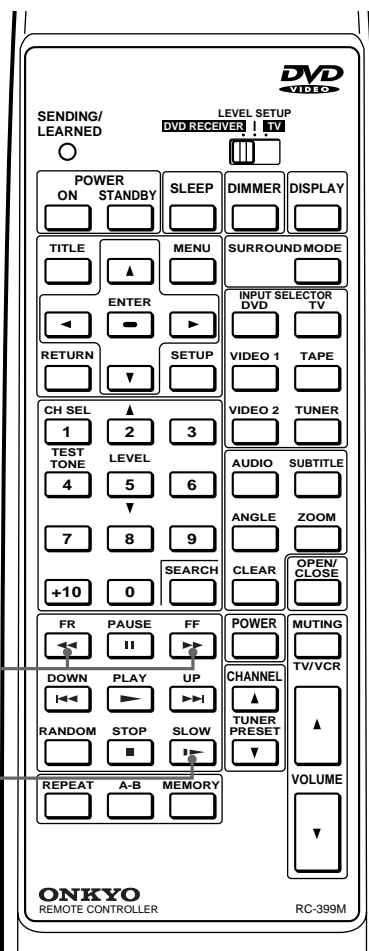
TV screen
(To check the marks on the right while playing a CD, turn on the TV and set the TV to the DVD Receiver's input.)



Note

No sound is reproduced and no subtitles appear while playing back a VIDEO CD, whereas the sound is reproduced while playing back an audio CD.

To resume normal playback, press PLAY.

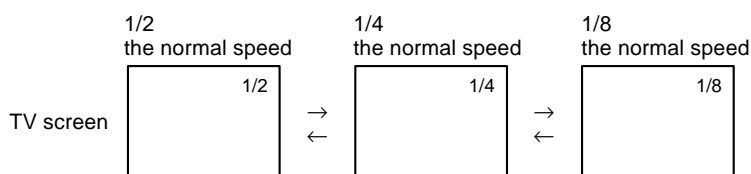


■ To play in slow-motion

DVD VCD

Press SLOW during playback.

Each press of SLOW changes the slow-motion speed as follows:



Note

The sound is muted during slow-motion playback.

To resume normal playback, press PLAY.

Various Functions While Playing Discs

To use the following functions, see page 29.

- Adjusting the volume
- Adjusting the tone
- Dimming the DVD Receiver's display
- Listening through headphones
- Using the Sleep Timer
- Muting the sound

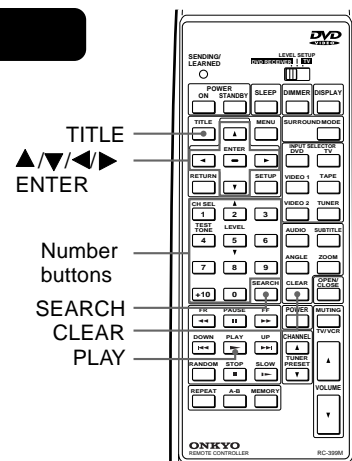
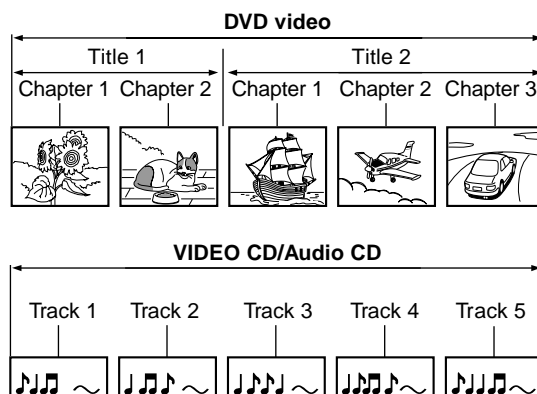
Enjoying the Sound Effects

See page 30.

Locating a Specific Title/Chapter/Track/Location

Normally, DVD videos are divided into titles, and the titles are subdivided into chapters. VIDEO CDs and audio CDs are divided into tracks.

You can quickly locate any specific title, chapter, or track.



■ Locating a title using the title menu



If a DVD video contains a title menu, you can locate a specific title using the title menu function.

1

Press TITLE. (Depending on the DVD video, press MENU.)

The title menu appears on the TV screen.

Example of a title menu.

2

Press ▲/▼/◀/▶ to select the title you want.

If the titles in the title menu are assigned a number, you can also directly locate a specific title by entering its assigned number using the number buttons.

3

Press ENTER.

The DVD Receiver starts playback from chapter 1 of the selected title.

Notes

- The instructions above describe basic procedures which may vary depending on the contents of the DVD video. If different instructions appear on the TV screen, follow those instructions.
- If you display the title menu during playback and press TITLE again without selecting any title, the DVD Receiver resumes playback from the point where you first pressed TITLE (depending on the actual DVD video).
- This method of locating a title is available only on a disc that contains a title menu.
- Instruction notes of discs may refer to the button that displays the title menu as "TOP MENU."

■ Locating a title by entering the title number



If a DVD video contains title numbers, you can locate a specific title by directly selecting a title number.

1

Press SEARCH.

Make sure that the space next to Title is highlighted. (You can shift the highlight using ▲/▼.)

e.g.

Title: **1**
 Chapter: 1

2

Press the number button(s) for the title you want.

e.g. To select title 2

Title: **2**
 Chapter: 1

To select title 12

Title: **12**
 Chapter: 1

3

Press PLAY.

The DVD Receiver starts playback from chapter 1 of the selected title.

Notes

- This method of locating a title is available only on a disc that contains title numbers.
- Pressing CLEAR resets the Title and Chapter numbers. To close the Title/Chapter display, press SEARCH several times.
- You can select a preferred language for on-screen display. (See pages 46 and 47.)


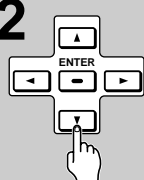
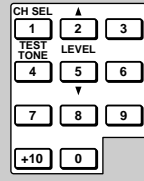

(Continued on next page.)

Playing DVD Videos/VIDEO CDs/Audio CDs (continued)

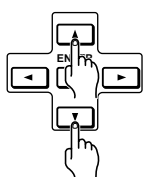
■ Locating a specific chapter or track directly

DVD
VCD
CD

If you know the chapter or track number you want to play, you can locate it directly.

1 	Press SEARCH. Skip steps 1 and 2 if you are using a VIDEO CD/audio CD. e.g. DVD video <div style="border: 1px solid black; padding: 5px; width: fit-content;"> Title: 1 Chapter: 1 </div>
2 	Press ▼ to highlight the space next to Chapter. e.g. DVD video <div style="border: 1px solid black; padding: 5px; width: fit-content;"> Title: 1 Chapter: 1 </div>
3 	Press the number button(s) of the chapter or track you want. You can use +10 (ten's digit button) to select numbers from 10 through 99. e.g. To select chapter or track 25 <div style="display: flex; align-items: center;"> <div style="margin-right: 20px;"> • 2 → 5 • +10 → +10 → 5 </div> <div style="border: 1px solid black; padding: 5px; width: fit-content;"> (DVD video) Title: 1 Chapter: 25 </div> <div style="border: 1px solid black; padding: 5px; width: fit-content;"> (VIDEO CD/ audio CD) Track: 25 </div> </div>
4 	Press PLAY. The DVD Receiver starts playback from the selected chapter or track.

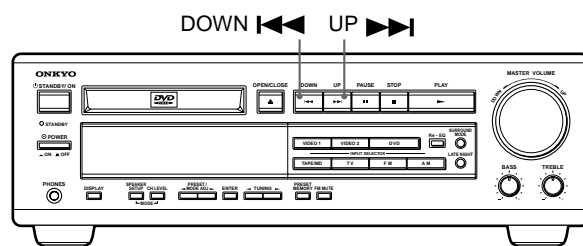
To select a title and chapter number at the same time



Press ▲/▼ to highlight the space next to "Title," and enter the title number using the number buttons.

Note





Pressing CLEAR resets the Title and Chapter numbers. To close the Title/Chapter display, press SEARCH several times.



■ Locating a specific chapter or track

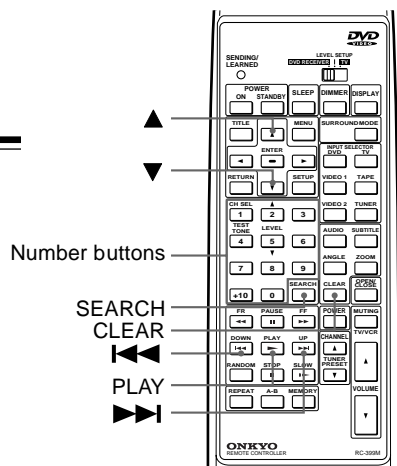
DVD
VCD
CD

You can locate consecutive chapters or tracks.

Remote controller  	Press ◀◀ or ▶▶ repeatedly to display the chapter or track number you want. The DVD Receiver starts playback from the selected chapter or track. ◀◀ : To locate preceding chapters or tracks When you press ◀◀, the DVD Receiver starts playback from the beginning of the current chapter or track. When you press ◀◀ twice, the DVD Receiver starts playback from the beginning of the preceding chapter or track. ▶▶ : To locate succeeding chapters or tracks
DVD Receiver  	

Notes


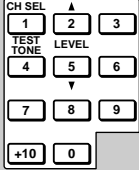

- Some title may not display chapter numbers.
- When you set "Title Stop" to "Off" (see page 56), you can locate consecutive chapters in another title. If you go back to the preceding title by pressing ◀◀, the DVD Receiver locates the first chapter of the title. When "Title Stop" is set to "On," you can locate consecutive chapters only within the current title.



■ Locating a specific location by entering the time

DVD
VCD
CD

You can locate a specific location by entering its corresponding time (hours, minutes, seconds).

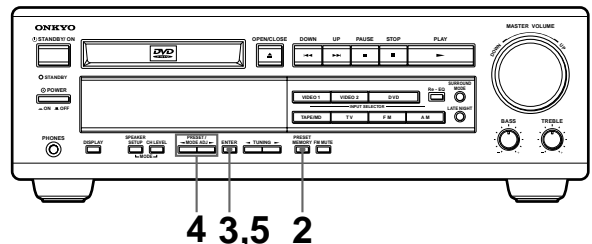
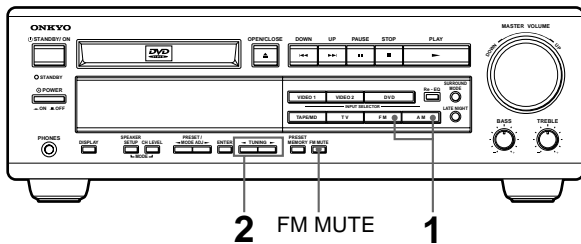
<p>1</p> 	<p>Press SEARCH twice.</p> <p>You may have to press repeatedly (depending on the disc) until the following display appears.</p> <div data-bbox="432 920 735 999" style="border: 1px solid black; padding: 5px;"> Time -:-:-:- </div>
<p>2</p> 	<p>Press the number buttons to enter the location's time.</p> <p>e.g. 1 → 2 → 5 → 3 → 0</p> <div style="display: flex; justify-content: space-around; margin-bottom: 5px;"> Hours Minutes Seconds </div> <div data-bbox="432 1245 735 1323" style="border: 1px solid black; padding: 5px;"> Time 1:25:30 </div>
<p>3</p> 	<p>Press PLAY.</p> <p>The DVD Receiver starts playback from the entered location.</p>

Notes

- Some discs may not respond to this procedure.
- Some scenes may not be located precisely.
- This method for accessing specific locations is available only within the current title of the DVD video or within the current track of the VIDEO CD/audio CD.

Listening to the Radio

There are two ways to select radio stations: one is manual tuning and the other is presetting radio stations then selecting the preset channels.



Tuning Manually

You can tune manually only with the buttons on the DVD Receiver.

1 	Press FM or AM to select the band.
2 	Press TUNING ◀/▶ to change the frequency. <ul style="list-style-type: none"> The frequency changes in 50 kHz steps in FM and 10 kHz in AM each time you press TUNING ◀/▶. In FM, if this button is held continuously for more than 0.5 seconds, the frequencies are scanned automatically—FM auto tuning mode. When a broadcast is received, scanning stops.

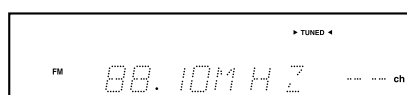
■ Tuning in a weak frequency (only for FM stations)

When you tune in a stereo FM station, the FM STEREO indicator lights up if the signal is sufficiently strong. If the signal is weak, you may not be able to tune to the station. In this case, tune in as follows.



Press FM MUTE.

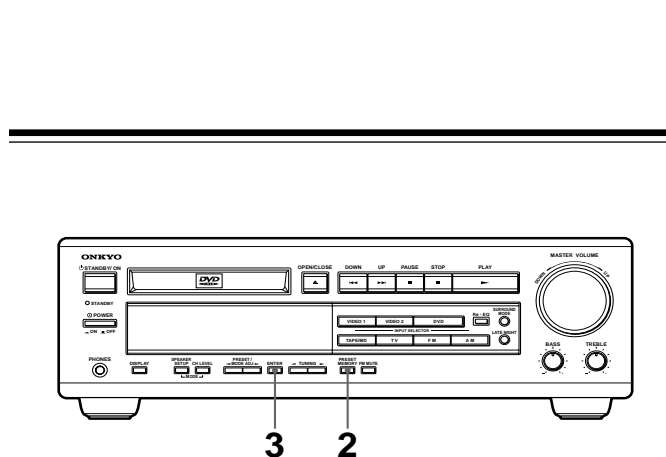
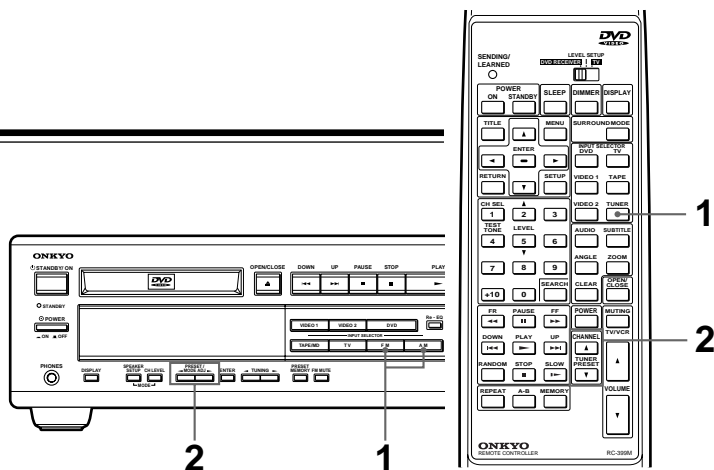
The FM MUTE indicator turns off. At this time, the station will be in mono and interstation noise will be heard. Select the station to which you want to listen.



Presetting Radio Stations

- You can preset up to 30 stations.
- You can preset radio stations only with the buttons on the DVD Receiver.

1	Tune in the radio station you wish to preset (see steps on the left).
2 	Press PRESET MEMORY. “PRESET IN” appears in the DVD Receiver's display.
3 	While “PRESET IN” is lit in the display, press ENTER. The MEMORY indicator lights up in the display.
4 	While the MEMORY indicator is lit in the display, press PRESET ◀/▶ to select the channel number to which you wish to register the radio station.
5 	Press ENTER. The radio station is registered to the preset channel. To register another preset station, repeat steps 1 to 5.



Selecting Preset Stations

Before selecting preset stations, you need to preset the radio stations. See "Presetting Radio Stations" on the previous page.

Selecting with the remote controller

1 	Press TUNER to switch the input source to the tuner. "FM" or "AM" appears in the DVD Receiver's display. The band selected in this step will not affect the next step.
2 	Press TUNER PRESET ▲/▼ repeatedly until the desired preset number appears. Note The DVD RECEIVER/LEVEL SETUP/TV switch must be set to DVD RECEIVER.

Selecting with the DVD Receiver

1 	Press FM or AM to switch the input source to the tuner. The band selected in this step will not affect the next step.
2 	Press PRESET ◀/▶ repeatedly until the desired preset number appears.

Erasing a Preset Station

Erasing preset stations can be made only with the buttons on the DVD Receiver.

1	Select the preset channel you wish to erase (see steps on the left).
2 	Press PRESET MEMORY twice. "ERASE" appears in the DVD Receiver's display. <div style="border: 1px solid black; padding: 5px; text-align: center;"> TUNED 4 ERASE 4 ch </div>
3 	While "ERASE" is lit in the display, press ENTER. The selected preset channel will be erased.

Various Functions While Listening to Radio Programs

To use the following functions, see page 29.

- Adjusting the volume
- Adjusting the tone
- Dimming the DVD Receiver's display
- Listening through headphones
- Using the Sleep Timer
- Muting the sound

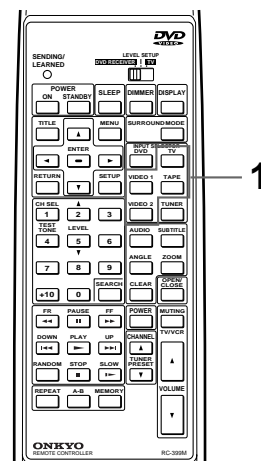
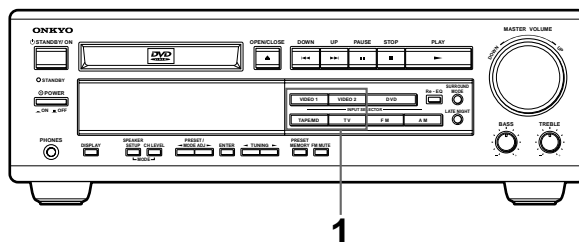
Enjoying the Sound Effects While Listening to the Radio Programs

See page 30.

Playing the Connected Source

This section shows you how to play the sources connected to the DVD Receiver.

You may need to see “Connecting to a TV” on page 10 and “Connecting to Audio/Video Equipment” on page 11 while following the steps in this section.



■ Operating with the remote controller

1

Press one of the INPUT SELECTOR buttons below to select the input source:

- TV
- TAPE
- VIDEO 1
- VIDEO 2

When TV is selected

2

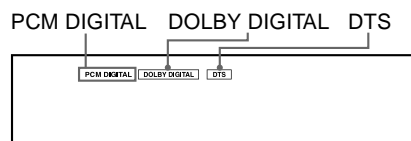
Start playing the selected source.

■ About digital sound

If the equipment is digitally connected to the DVD Receiver, the sound from the digital input will automatically be selected and reproduced instead of the analog sound as explained below.

- When the VIDEO 1 source is selected, the digital sound from the DIGITAL INPUT OPTICAL VIDEO 1 connector is reproduced.
- When the VIDEO 2 source is selected, the digital sound from the DIGITAL INPUT COAXIAL VIDEO 2 connector is reproduced.

When the digital sound is reproduced, the PCM DIGITAL (2 channel digital stereo), DOLBY DIGITAL, or DTS indicator lights up according to the received sound system in the DVD Receiver's display.



■ Operating with the DVD Receiver

1

Press one of the INPUT SELECTOR buttons below to select the input source:

- TV
- TAPE/MD
- VIDEO 1
- VIDEO 2

2

Start playing the selected source.

■ Enjoying the picture with the sound of another source

The picture from the last selected VIDEO IN jack (VIDEO 1 or VIDEO 2) continues to be output through the MONITOR OUT jack even if you change to another audio source.

Therefore, if you select VIDEO 1 or VIDEO 2 first, then select TAPE/MD, FM, AM, or TV, you can enjoy the VIDEO 1 or VIDEO 2 picture and the sound from TAPE/MD, FM, AM, or TV at the same time.

Various Functions While Playing the Connected Source

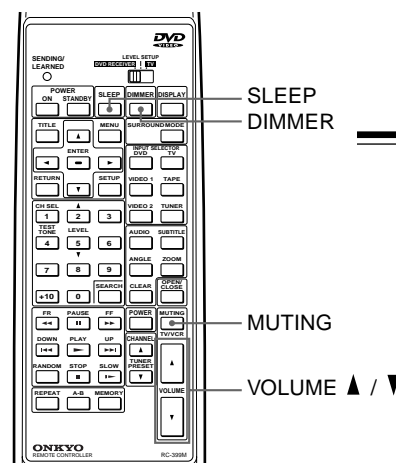
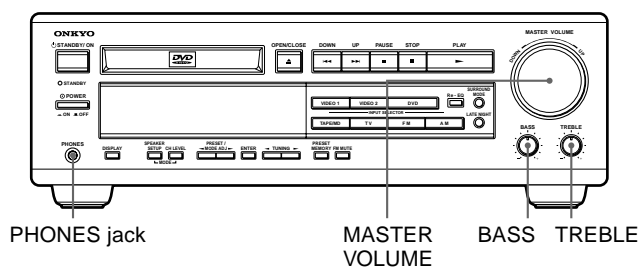
To use the following functions, see page 29.

- Adjusting the volume
- Adjusting the tone
- Dimming the DVD Receiver's display
- Listening through headphones
- Using the Sleep Timer
- Muting the sound

Enjoying the Sound Effects While Playing the Connected Source

See page 30.

Various Functions Common to all the Sources

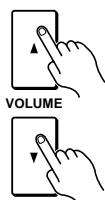


Adjusting the Volume

The volume of the front left and right, center, surround left and right, and subwoofer speakers will be adjusted at the same time.

When headphones are connected (see on right), you can adjust the volume of the sound through the headphones.

■ Adjusting with the remote controller



Press **VOLUME ▲ / ▼**.

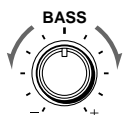
■ Adjusting with the DVD Receiver



Turn **MASTER VOLUME** clockwise to increase the volume, or counterclockwise to decrease the volume.

Adjusting the Tone

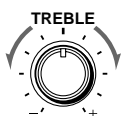
■ Adjusting low frequencies



Turn **BASS** on the DVD Receiver to + to increase the level of the low frequencies, or – to decrease it.

There is no low frequency control at the center position.

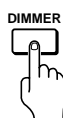
■ Adjusting high frequencies



Turn **TREBLE** on the DVD Receiver to + to increase the level of the high frequencies, or – to decrease it.

There is no high frequency control at the center position.

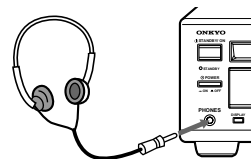
Dimming the DVD Receiver's Display



Press **DIMMER** on the remote controller. To resume the original brightness, press the button again.

Listening Through Headphones

Connect the plug of the stereo headphones to the **PHONES** jack on the DVD Receiver.



Notes

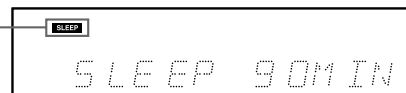
- The speakers will not reproduce sound while headphones are connected.
- Sound will automatically be switched to stereo after connecting the headphones to the PHONES jack.

Using the Sleep Timer



Press **SLEEP** on the remote controller. "SLEEP 90" appears in the DVD Receiver's display, which means the DVD Receiver will turn off and enter standby mode in 90 minutes.

The SLEEP indicator



Each press of the button makes the remaining time shorter by 10 minutes.

■ Checking the remaining time

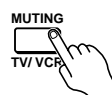
Press **SLEEP** while Sleep Timer is on.

If you press SLEEP while the remaining time is displayed, the remaining time is reduced by 10 minutes.

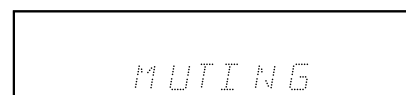
■ Canceling the Sleep Timer

Press **SLEEP** repeatedly until the **SLEEP** indicator goes off.

Muting the Sound



Press **MUTING** on the remote controller. "MUTING" appears in the DVD Receiver's display. To restore the sound, press **MUTING** again.



Tip

During muting:

- If you press **VOLUME ▲ / ▼** on the remote controller, the sound will be restored.
- If you turn off the unit, and turn it on again, the sound will be restored.

Enjoying the Sound Effects

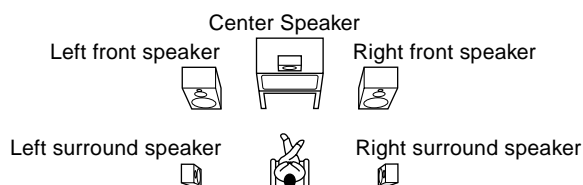
The surround sound of the DVD Receiver enables you to enjoy the presence of a movie theater or concert hall in your room. Before using any sound effect, make sure the Speaker Setup configurations have been set (see page 18).

The speaker configuration is very important for the surround sound. See "Connecting Speakers" on page 12 and "Positioning Speakers" on page 13.

Following are the sound systems the DVD Receiver can reproduce.


■ DOLBY DIGITAL Surround and DTS (Digital Theater System) Surround

Minimum required speaker system




This 5.1-channel digital surround format enables you to individually record and play five full-range (20Hz-20kHz) channels (left and right front, center, two surround channels) plus an LFE channel (Low Frequency Effect) for the low-range effect sound. It will create a realistic sound that can be heard in the theaters and concert halls.

DOLBY DIGITAL Surround

Select this option when you play a DVD video that has the  mark.

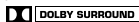
DTS Surround

Select this option when you play a DVD video, laser disc, or CD that has the  mark. To playback DTS Surround sound with the connected equipment such as a video disc player, the digital connection is a must in addition to the above speaker configuration.

Notes on DTS Surround

- If you play a DTS Surround encoded disc with the DVD Receiver, or a DTS encoded disc using the digitally connected player, you may hear a noise for a short while until the DTS decoder of the DVD Receiver recognizes the DTS encoded signal and starts operating. This is not a malfunction.
- If you pause, or skip a chapter or track, while playing a DTS Surround source, a short noise may be heard. This is not a malfunction.
- Even when playback of the DTS Surround source stops and the DTS signal transmission ends, the DVD Receiver remains in DTS mode and the DTS indicator remains lit. This is to prevent noise when you pause, fast forward, fast reverse, or skip a chapter or track of the playback source. Therefore, if the source switches from the DTS signal to a PCM (2 channel digital stereo) signal immediately, the PCM signal may not be played. In such a case, stop playback for about three seconds, then resume playback.
- Some CD players (if connected to the DVD Receiver) and video disc players may be unable to play DTS Surround sources correctly even if you connect the player to the DVD Receiver digitally. In such a case, the digital signals (such as the output level, sampling frequency, frequency response, etc.) processed by the player cannot be recognized as DTS data by the DVD Receiver and you may hear noise instead of the proper sound.

■ DOLBY PRO LOGIC Surround

This surround format consists of four channels (left and right front, center, and monaural surround channel) and emphasizes the center channel. This format is very effective for panning music, conversation, and three-dimensional sound movement output from three front channels. It also simulates the atmosphere and surround effects of the sound reflected from the side and rear walls of the theater. Select this option when you play a VHS, VHS Hi-Fi, laser disc, or DVD video that has the  mark.

■ Onkyo's original sound effects –DSP (Digital Signal Processor)

The DVD Receiver offers the following special Onkyo sound effects for sources other than Dolby Digital and DTS sounds.

ORCHESTRA

This mode is suitable for classical and opera music. The center channel is cut and the surround channels are emphasized to widen the stereo image. It will simulate a natural reverberation as created in a large hall.

UNPLUGGED

This mode is suitable for acoustic instrumental sounds, vocals, and jazz music. By emphasizing the front stereo image, it simulates the acoustics in front of the stage.

STUDIO-MIX

This mode is suitable for rock and popular music. Lively sounds with a powerful acoustic image will make you feel as if you are in a club.

TV LOGIC

This mode offers a realistic acoustics of a TV program being aired in the TV studio. It enhances the entire surround sound and clarity of conversation.

5CH STEREO

This mode is useful for background music. The front and surround channels will create a stereo image.

■ Available sound systems with limited speaker configurations

When only the left, center, and right front speakers are connected



The following modes are available:

DOLBY 3 STEREO

The surround channel sound is output from the left and right front speakers.

STEREO

This is the normal stereo sound. The surround mode is canceled.

When only the left and right front speakers are connected



Only STEREO is available. This is a normal stereo sound.

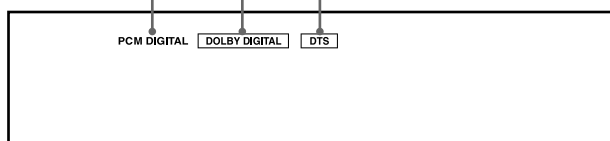
Selecting the Sound Effect

The DVD Receiver will automatically detect the sound system when DOLBY DIGITAL () Surround, DTS () Surround, or PCM DIGITAL (2 channel digital stereo) is played back. The sound system appears in the DVD Receiver's display.

Lights up when PCM DIGITAL (2 channel digital stereo) sound is reproduced.

Lights up when DOLBY DIGITAL Surround sound is reproduced.

Lights up when DTS Surround sound is reproduced.



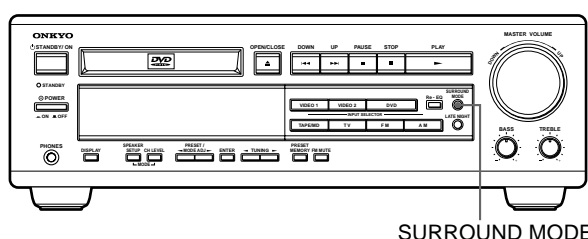
Changing the output sound signal format of the DVD video/VIDEO CD/audio CD

You can change the format of the sound signal being output via the speakers and output jacks using the menu (see page 40).

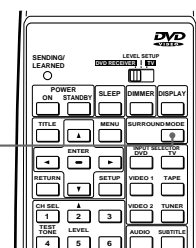
This means, for example, even if DOLBY DIGITAL Surround sound is played by the DVD Receiver, you can output sound to the speakers in the 48 kHz/16 bit format, which enables you to use the DSP sound effects below instead of DOLBY DIGITAL Surround.

■ Using Onkyo's original sound effects – DSP (Digital Signal Processor) selection

While playing back sources other than DOLBY DIGITAL and DTS Surround sounds, you can select the desired DSP mode.



SURROUND
MODE



SURROUND MODE

Remote controller

SURROUND MODE



DVD Receiver

SURROUND
MODE



Press SURROUND MODE on the remote controller or DVD Receiver repeatedly until the desired DSP mode appears in the DVD Receiver's display.

The DSP indicator lights up when one of the DSP modes is selected. Each press of the button changes the DSP mode as follows:

STEREO → DOLBY PRO LOGIC* → ORCHESTRA → UNPLUGGED → STUDIO-MIX → TV LOGIC → 5CH STEREO



* When only the left, center, and right front speakers are connected, or if the configurations of the other speakers are set to "NONE," "3 STEREO" (DOLBY 3 STEREO) appears instead of "DOLBY PRO LOGIC" as above described. When only the left and right front speakers are connected, or if the configurations of the other speakers are set to "NONE," this selection will be skipped as above described.

Notes

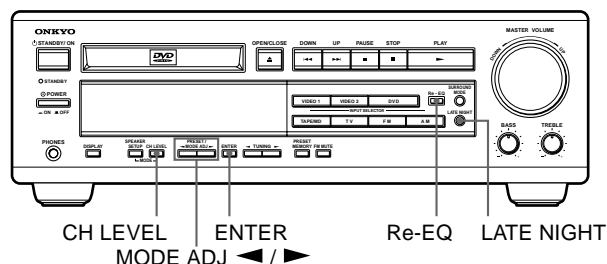
- When DOLBY DIGITAL Surround sound is reproduced, you can select only "DOLBY DIGITAL" or "STEREO."
- When DTS Surround sound is reproduced, you can select only "DTS" or "STEREO."

DSP indicator

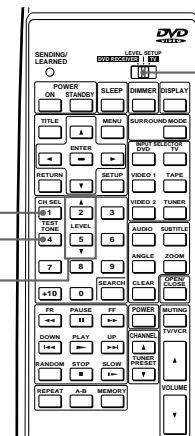


(Continued on next page.)

Enjoying the Sound Effects (continued)



CH SEL
TEST TONE
LEVEL ▲/▼



DVD RECEIVER/
LEVEL SETUP/
TV switch

Readjusting Each Speaker's Relative Volume Balance

You can readjust each speaker's relative volume balance according to your preference while listening to the sound. The adjusted values will be canceled when the DVD Receiver enters standby mode, or the main power is switched off unless you save the values.

Be sure to return the DVD RECEIVER/LEVEL SETUP/TV switch to the DVD RECEIVER position after adjustment.

■ Operating with the remote controller

LEVEL SETUP
DVD RECEIVER | TV

Slide the DVD RECEIVER/LEVEL SETUP/TV switch to LEVEL SETUP.

CH SEL
LEVEL ▲/▼

Press CH SEL repeatedly to select the speaker, then press LEVEL ▲/▼ to adjust the volume level of the selected speaker at your listening position.

Be sure to return the switch to the DVD RECEIVER position after adjustment.

■ Operating with the DVD Receiver

1

CH LEVEL

Press CH LEVEL repeatedly to select the speaker.

The normal display resumes by pressing CH LEVEL after "SUBWOOFER" is displayed.

2

PRESET / MODE ADJ

Press MODE ADJ ◀/▶ to adjust the volume level of the selected speaker.

3

ENTER

Press ENTER to set the volume level and select the next speaker at the same time.

Each press of the button selects the next speaker to be adjusted. Repeat steps 2 and 3 if necessary.

Saving the readjusted values

LEVEL SETUP
DVD RECEIVER | TV

Press TEST TONE on the remote controller while the DVD RECEIVER/LEVEL SETUP/TV switch is set to LEVEL SETUP.

The values set is "Adjusting Each Speaker's Relative Volume Balance—Test Tone" on page 19 will be replaced by the readjusted values.

TEST TONE

Using the LATE NIGHT/FRONT EFFECT Function

- **The LATE NIGHT function operates when the sound is DOLBY DIGITAL Surround.**
If you play a movie at low volume at night, set this function to "ON" to narrow the dynamic range of the sound and make it easier to hear.

- **The FRONT EFFECT function operates with the DSP effects.**
If you use one of the DSP sound effects with a source containing acoustic reverberation, the sound may become unclear because of too much reverberation. In such case, set this function to "ON." The DSP sound effect will not add additional reverberation to the sound output to the three front speakers.

DVD Receiver

LATE NIGHT

Press LATE NIGHT.

The current setting appears in the DVD's display.

- **When the button is pressed while DOLBY DIGITAL Surround sound is being reproduced**
"L-NIGHT ON" or "L-NIGHT OFF" appears.
- **When the button is pressed while one of the DSP sound effects is being used**
"FRONT EFFECT ON" or "FRONT EFFECT OFF" appears.

Each press of the button switches the setting to "ON" or "OFF."

Note

The LATE NIGHT effect is determined by each DOLBY DIGITAL sound source. Some sounds may produce little or no effect.

Using the Re-EQ Function

This function is available only with DOLBY DIGITAL Surround, DTS Surround, and DOLBY PRO LOGIC Surround. Re-Equalization takes the edginess or "brightness" out of your home cinema sound, compensating for the fact that sound mixed for theaters is too bright when played back through speakers in the home environment.

DVD Receiver

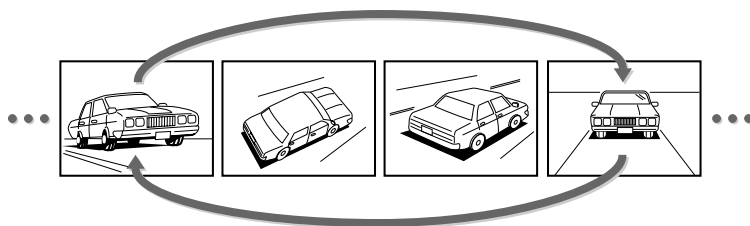
Re-EQ

While DOLBY DIGITAL Surround, DTS Surround, or DOLBY PRO LOGIC Surround is being reproduced, press Re-EQ.

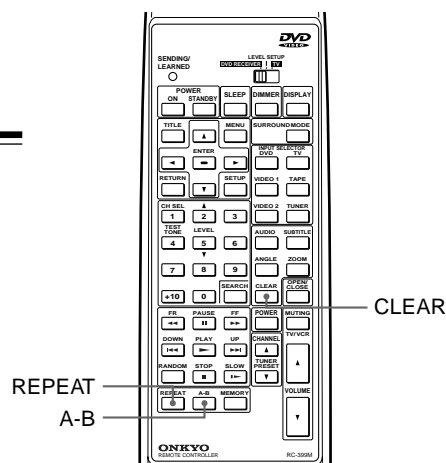
The current setting ("Re-EQ ON" or "Re-EQ OFF" appears in the DVD Receiver's display.

Each press of the button switches the RE-EQ setting to "ON" or "OFF."

Playing Repeatedly




You can play a specific title, chapter, track, or segment repeatedly (Title repeat, chapter/track repeat, A-B repeat).



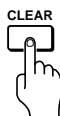
DVD VCD CD

Repeating a Title, Chapter, or Track

You can play the same title, chapter, or track repeatedly (Title, chapter/track repeat).

1	Select the title, chapter, or track you want to repeat. (See pages 23 to 25.)												
2 	<p>Press REPEAT.</p> <p>Each time you press REPEAT, the repeat mode changes as follows.</p> <p>DVD video</p> <table border="1"> <tr> <td>Chapter Repeat</td> <td>Repeats the same chapter.</td> </tr> <tr> <td>Title Repeat</td> <td>Repeats the same title.</td> </tr> <tr> <td>Repeat Off</td> <td>Resumes normal playback.</td> </tr> </table> <p>VIDEO CD/Audio CD</p> <table border="1"> <tr> <td>Track Repeat</td> <td>Repeats the same track.</td> </tr> <tr> <td>All Repeat</td> <td>Repeats the entire disc.</td> </tr> <tr> <td>Repeat Off</td> <td>Resumes normal playback.</td> </tr> </table>	Chapter Repeat	Repeats the same chapter.	Title Repeat	Repeats the same title.	Repeat Off	Resumes normal playback.	Track Repeat	Repeats the same track.	All Repeat	Repeats the entire disc.	Repeat Off	Resumes normal playback.
Chapter Repeat	Repeats the same chapter.												
Title Repeat	Repeats the same title.												
Repeat Off	Resumes normal playback.												
Track Repeat	Repeats the same track.												
All Repeat	Repeats the entire disc.												
Repeat Off	Resumes normal playback.												

■ To resume normal playback





Press CLEAR.

Note
Some discs may not permit repeat operation.

DVD VCD CD

Repeating a Specific Segment

You can play a specific segment repeatedly (A-B repeat).

1 	<p>Press A-B at the beginning of the segment (point A) you want to play repeatedly.</p> <p>A-</p>
2 	<p>Press A-B again at the end of the segment (point B).</p> <p>A-B</p> <p>The DVD Receiver automatically returns to point A and starts repeat playback of the selected segment (A-B).</p>

■ To resume normal playback



Press CLEAR.

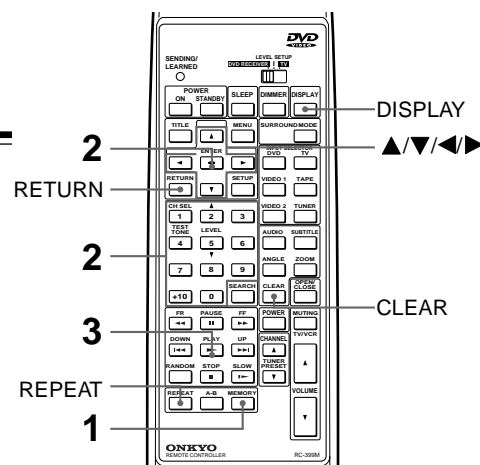
Notes

- Some discs may not permit A-B repeat operation.
- You can play a specific segment only within the current title or track.
- You cannot set the A-B repeat function for segments that include multiple camera angles.
- There may be a slight difference between point A and the location where playback actually resumes depending on the disc.

Playing in a Favorite Order



You can combine your favorite titles, chapters, or tracks and play them in any order. You can program up to 28 selections into the memory (Memory playback).



DVD VCD CD

Setting Titles, Chapters, or Tracks in a Favorite Order

The DVD Receiver automatically plays titles, chapters, or tracks in the order you program.

1

MEMORY

Insert a disc and press MEMORY while the disc is stopped.

The following display appears.

e.g. When the DVD video is in the DVD Receiver.

MEMORY			
T	C	T	C
1	--	8	--
2	--	9	--
3	--	10	--
4	--	11	--
5	--	12	--
6	--	13	--
7	--	14	--

T: Title number
C: Chapter number

2

Press ◀▶ to highlight "--" below T, then enter the title number. Press ◀▶ to highlight "--" below C, then enter the chapter number. Press ENTER to confirm.

Repeat this step to select the next title and chapter.

To select another chapter in the same title, just press the number button(s) consecutively.

e.g. To play chapter 25 in title 2, chapter 12 in title 2, all the chapters in title 1, and chapter 2 in title 4.

Title number

Chapter number

Memory 1: ◀ 2 ▶ 2 5 ENTER

Memory 2: 1 2 ENTER

Memory 3: ◀ 1 ENTER

Memory 4: 4 ▶ 2 ENTER

MEMORY			
T	C	T	C
1	02	25	8
2	02	12	9
3	01	--	10
4	04	02	11
5	--	12	--
6	--	13	--
7	--	14	--

VCD CD

3

PLAY

Press the number button(s) to select the track number, then press ENTER to confirm.

Repeat this step to select the next track.

While the MEMORY display is displayed, press PLAY.

The DVD Receiver starts memory playback.

■ To change or cancel the entered program

While the MEMORY display is displayed, press ▲/▼ to highlight the item. To select another title/chapter or track follow step 2. To cancel, press CLEAR.

■ To resume normal playback

Press CLEAR.

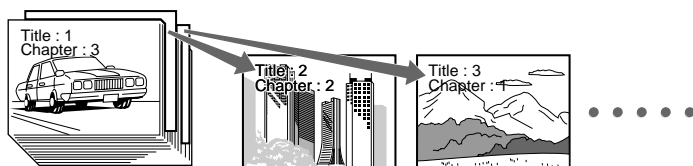
■ To program during playback

If you press MEMORY during playback, the display to accept your programming appears. To display the MEMORY display, press DISPLAY, then follow steps 2 and 3.

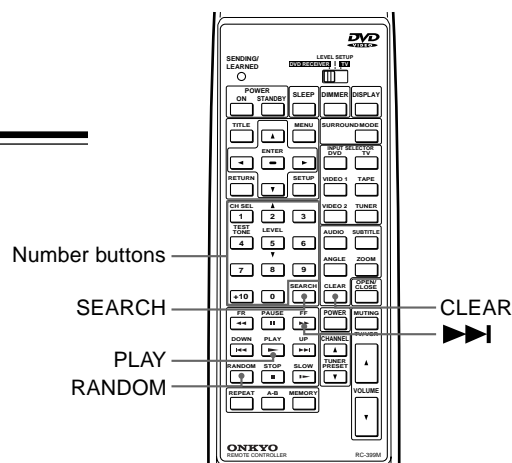
Notes

- Some discs may not permit memory playback operation.
- If you press REPEAT during memory playback, the DVD Receiver repeats the current memory playback.
- You cannot select title, chapter, and track numbers not included on the disc.
- If you press MEMORY or RETURN while the MEMORY display is displayed, the MEMORY display disappears.
- The programmed selections will be cleared when you turn off the DVD Receiver.

Playing in Random Order



You can play titles, chapters within a title, or tracks in random order (Random playback).



DVD VCD CD

Playing Titles or Tracks in Random Order

The DVD Receiver automatically selects the titles in a DVD video, or tracks in a VIDEO CD/audio CD, and plays them randomly.

<p>1</p>	<p>DVD</p> <p>Press RANDOM <u>twice</u> while the disc is stopped.</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;">Title Random</div> <p>VCD CD</p> <p>Press RANDOM <u>once</u> while the disc is stopped.</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;">Track Random Track : 1</div> <p>If you press RANDOM during playback, the DVD Receiver automatically starts random playback after finishing the current title or track.</p>
<p>2</p>	<p>Within 5 seconds, press PLAY. The DVD Receiver starts random playback.</p>

■ To resume normal playback



Press **CLEAR**.

Notes

- Some discs may not permit random playback operation.
- You cannot use the random playback function together with the memory playback function.
- If you press UP ►► during random playback, the DVD Receiver goes to another title or track and continues random playback.

DVD

Playing Chapters in Random Order

The DVD Receiver automatically selects the chapters in a title and plays them randomly.

<p>1</p>	<p>Press SEARCH, then press the appropriate number button(s) for the title which contains the chapters you want to play in random order.</p> <p>e.g. To play the chapters in title 2 in random order</p> <div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 2px 5px;">SEARCH</div> <div style="margin: 0 5px;">→</div> <div style="border: 1px solid black; padding: 2px 5px;">2</div> </div> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;">Title : 2 Chapter: 1</div>
<p>2</p>	<p>Press RANDOM while the disc is stopped.</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;">Chapter Random Title : 2 Chapter: 1</div> <p>If you press RANDOM during playback, the DVD Receiver automatically starts random playback after finishing the current chapter.</p>
<p>3</p>	<p>Within 5 seconds, press PLAY. The DVD Receiver starts random playback.</p>

■ To resume normal playback

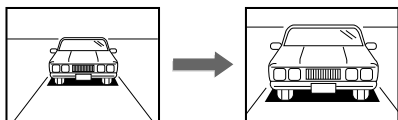


Press **CLEAR**.

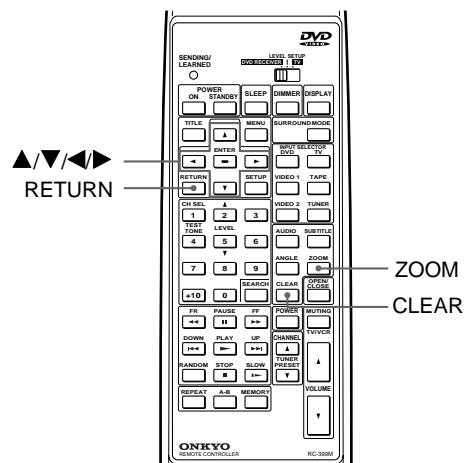
Notes

- Some discs may not permit random playback operation.
- You cannot use the random playback function together with the memory playback function.
- If you press UP ►► during random playback, the DVD Receiver goes to another chapter and continues random playback.

Zooming a Picture



You can magnify areas within a picture.



DVD

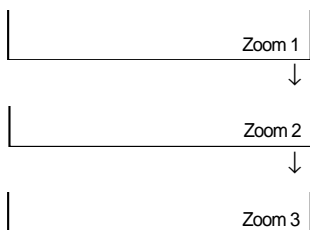
Zooming a Picture and Shifting the Zoom Point

You can zoom in on a picture. You can also shift the zoom point.

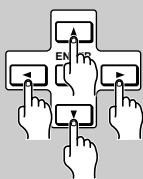


Press ZOOM during normal, slow, or still playback.

If you press ZOOM repeatedly, the magnification level increases.



To reduce the magnification level
Press RETURN.



To shift the zoom point

Press ▲/▼/◀/▶.

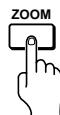
When the zoom point reaches an edge of the picture, the color of "Zoom" changes.



To restore the original zoom point (center of the picture)

Press CLEAR.

■ To resume normal playback

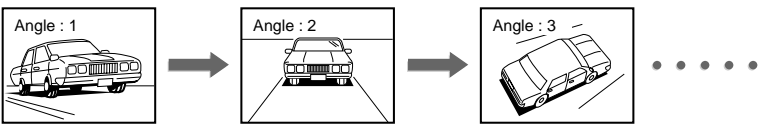


Press ZOOM repeatedly until "Zoom" disappears.

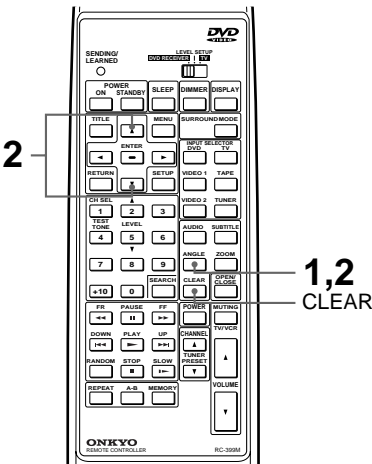
Notes

- Some discs may not permit to zoom operation.
- During some scenes, the buttons may not work as described above.
- Zooming does not work on subtitles or menu screens included on DVD videos.
- During zoom playback, ▲/▼/◀/▶ does not work on menu screens included on DVD videos. If you want to view the menus, cancel zoom playback.
- The magnification level varies depending on the picture size you select. (See pages 44 and 48.)

Selecting the Camera Angle




You can select a preferred camera angle to watch a scene.



Changing the Camera Angle

If the scene was recorded from multiple angles, you can easily change the camera angle of the scene you are watching.

1



Press ANGLE while playing a scene recorded with multiple angles.

While playing a scene recorded with multiple angles, the angle icon (📷) appears in the DVD display and on the TV screen.

Press ANGLE while the angle icon is displayed.

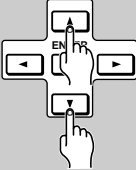

Angle: 1

📷

Angle icon

Current angle number

2



Press ANGLE or ▲ while the angle number is displayed on the TV screen.

Each time you press ANGLE or ▲, the camera angle changes.

Angle: 1

↓

Angle: 2

↓

Angle: 3

⋮

▼ : Cycles backwards

You can change the camera angle directly by pressing the number buttons corresponding to the angle number instead of using ▲/▼.

■ To turn off the angle number display



Press CLEAR.

■ To disable the angle icon display on the TV

From the on-screen displays, set “On-Screen Displays” to “Off.” (See pages 44 and 52.) Monitor the DVD display when you want to change the camera angle.

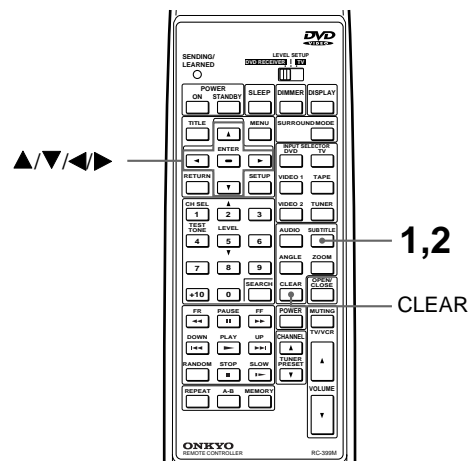
Notes

- You can change the camera angle during still playback. The camera angle changes to the new setting when you resume normal playback.
- If you pause a picture immediately after changing the camera angle, the resumed playback picture may not use the new camera angle.

Selecting Subtitles Included on the DVD



You can display subtitles on the TV screen and select a subtitle language from those included on the DVD video.



DVD

Selecting a Subtitle Language

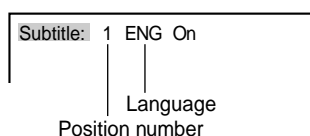
You can select a subtitle language from those included on the DVD video.

1



Press SUBTITLE during playback.

The current subtitle setting is displayed for about 3 seconds.



The abbreviation of the language appears instead of the language name. Refer to the list of languages and their abbreviations. (See page 57.)

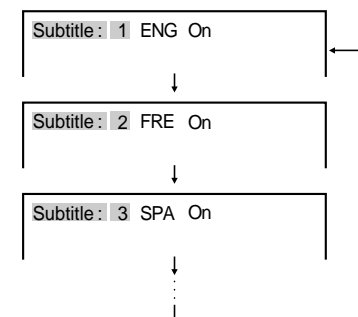
2



Press SUBTITLE or ▲ while the subtitle setting is displayed on the TV screen.

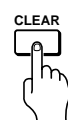
Each time you press SUBTITLE or ▲, the subtitle language changes to the next language included on the DVD video.

e.g.



▼ : Cycles backwards

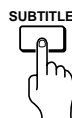
■ To turn off the subtitle setting display



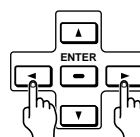
Press CLEAR.

■ To turn subtitles on or off

1. Press SUBTITLE during playback.



2. Press ▲/▼ while the subtitle setting is displayed on the TV screen, to select "On" or "Off."



Displayed for about 3 seconds

Subtitle : 1 ENG On

Subtitles — Good evening!

Subtitles are not displayed.

Subtitle : 1 ENG Off

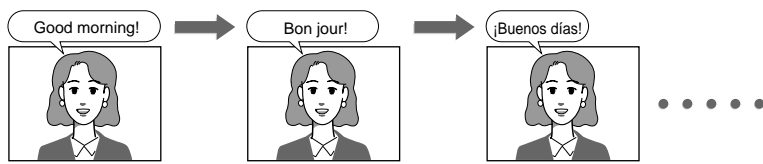
Notes

- When you turn on the DVD Receiver or replace a disc, the DVD Receiver returns to the initial default setting. (See page 47.) When you select a subtitle language which is not included on the disc, the DVD Receiver plays the prior language programmed on the disc.
- During some scenes, the subtitles may not appear immediately after you change the subtitle language by pressing ▲/▼.

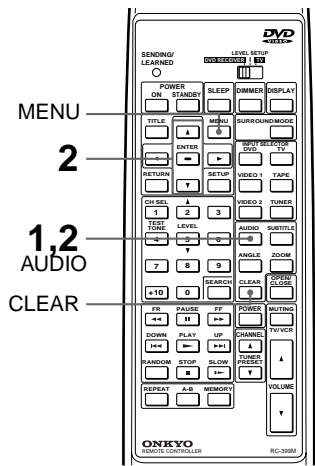
Notes

- Some DVD videos are set to display subtitles automatically, and you cannot turn them off even if you set the subtitle function to off.
- During some scenes, the subtitles may not appear immediately after you select "On."
- Some DVD videos will allow you to make subtitle selections and turn subtitles on or off only by using the disc menu.

Selecting Audio Language/Sound Included on the Disc



You can select a preferred audio language and sound system.



Selecting a Playback Audio Setting

You can select a set of preferred audio language and sound system from those included on the DVD video. This function enables you to temporarily change the audio language which has been selected as the automatic setting in the setting menu (see pages 44 and 47), and select the sound system if the DVD video is recorded in more than one sound format.

1

Press AUDIO during playback.
The current audio setting is displayed for about 3 seconds.

Audio language

Sound system

Audio channel

Audio: 1 ENG PCM 2CH

Audio OUT Select : Bitstream

See next page.

The abbreviation of the language appears. Refer to the list of languages on page 57.

2

Press AUDIO or ▲ while the audio setting is displayed on the TV screen.
Each time you press AUDIO or ▲, the set of language and audio recording system changes.

e.g.

Audio: 1 ENG □□ 6CH

↓

Audio: 2 ENG PCM 2CH

↓

Audio: 3 FRE □□ 6CH

↓

▼ : Cycles backwards

Note
Dolby Digital 5.1 Channel sound may be displayed as "□□ 6CH."

About recording systems

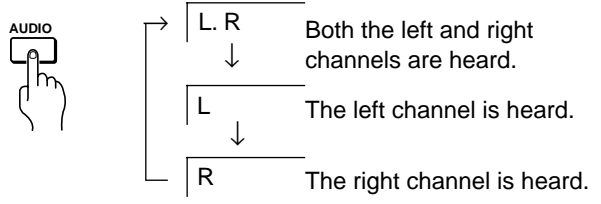
This DVD Receiver uses the Dolby Digital (□□ 6CH), DTS, and PCM systems and cannot play DVD videos recorded in any other sound system.

- Notes**
- Some discs allow you to change audio selections only by using the disc menu. If this is the case, press MENU and choose the appropriate language from the selections in the disc menu.
 - Some discs may have only one set of audio language and sound recording system and you cannot make this selection.
 - The "Audio Language" setting in the setting menu (see page 47) is for automatic selection of the audio language among those included on the DVD video when the DVD is inserted. Therefore, the selection in this section will not change the setting of "Audio Language" in the setting menu.
 - When you turn on the DVD Receiver or replace a disc, the DVD Receiver returns to the automatic setting in the setting menu (see page 47).

Selecting Sound Channels of VIDEO CDs

A VIDEO CD may have left and right sound channels and contain sounds or languages on each channel. You can switch these two channels to hear a preferred sound or language.

During playback, press AUDIO repeatedly to select the sound channel.



To turn off the audio setting display



Advanced DVD/VIDEO CD/
Audio CD operation

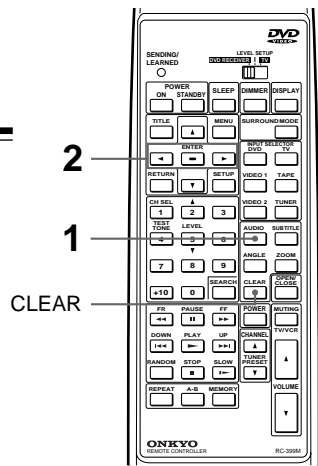
Changing the Sound Signal Conversion Method

The reproduced disc sound will be output in the most suitable format automatically through the connected speakers and output connector/jacks on the DVD Receiver when “Audio Out Select” in the setting menu is set to “Bitstream” (see page 50). However, you may need to convert the sound format in different ways depending on your purpose and preference.

For example, when you wish to:

- Listen to the high-frequency (kHz)/high-quantization (bit) format source in its original sound quality (see below), or
- Record the DVD video sound reproduced in the DOLBY DIGITAL format using recording equipment such as an MD recorder connected to the DIGITAL OUTPUT OPTICAL connector on the DVD Receiver (see next page).

This function enables you to temporarily change the sound signal conversion method which has been selected automatically according to the automatic setting in the setting menu (see pages 44 and 50).



DVD VCD CD

Changing the Sound Signal Conversion Method Temporarily

1

Press AUDIO during playback.
The current audio setting is displayed for about 3 seconds.

Audio: 1 ENG PCM 2CH

Audio OUT Select : Bitstream

See previous page.

The current sound signal conversion method

2

Press ◀▶ while the audio setting is displayed on the TV screen.

Audio: 1 ENG PCM 2CH

Audio OUT Select : 96k Sound

Each time you press ◀▶, the setting changes as follows:

Bitstream ↔ 96k Sound ↔ PCM

For details about “Bitstream,” “96k Sound,” and “PCM,” see the explanation on page 50 and table on the opposite page.

■ To turn off the audio setting display

Press CLEAR.

- Notes**
- The “Audio Out Select” setting in the setting menu (see page 50) is for automatic selection of the sound conversion method when the disc is inserted. Therefore, the selection in this section will not change the setting of “Audio Out Select” in the setting menu.
 - When you turn on the DVD Receiver or replace a disc, the DVD Receiver returns to the automatic setting in the setting menu (See page 44.)

DVD

To Listen to a High-Frequency/High-Quantization Format Source in its Original Sound Quality – 96k Sound

The high frequency/high quantization sound signals below are converted into 48 kHz/16 bit sound signals and sent to the speakers when the “Audio Out Select” (sound signal conversion method) is set to the standard setting, “Bitstream.”

High frequency/high quantization signals

- 48 kHz/24 bit
- 96 kHz/16 bit
- 96 kHz/20 bit
- 96 kHz/24 bit

To listen to the high-frequency (kHz)/high-quantization (bit) format sounds in their original sound quality, follow the steps below.

1

Change the sound signal conversion method to “96k Sound” following the steps on the left.

As you see ❸ in the table titled “Sound from the speakers” on the opposite page, the DVD videos recorded in 48 kHz/24 bit, 96 kHz/16 bit, 96 kHz/20 bit, and 96 kHz/24 bit are reproduced through the speakers at the same kHz and bit rate respectively.

2

If a subwoofer is connected, set the subwoofer configuration to “NO” following steps 1 and 2 in “Speaker Setup” on page 18.

Skip the rest of the steps by pressing ENTER repeatedly.

3

Press SURROUND MODE on the remote controller or DVD Receiver repeatedly until “STEREO” appears in the DVD Receiver's display.

See “Using Onkyo's original sound effects – DSP selection” on page 31.

40

Changing the DOLBY DIGITAL Sound Format to the Digitally Recordable Frequency (kHz)/Quantization (bit)

Change the sound signal conversion method to “PCM” following the steps in “Changing the Sound Signal Conversion Method Temporarily” on the opposite page.

Referring to ❸ in the table below, the DOLBY DIGITAL Surround format will be converted into the 48 kHz/16 bit format which is recordable.

■ Output sound conversion tables

Symbols in the tables

- The symbols ❶ and ❷ are referred on the previous page and this page.
- The symbols ❸, ❹, ❺, ❻, ❼, and ❽ are referred on page 59 in “Recording Using the Connected Equipment.”

Sound from the speakers

Discs	Sound systems*1	Conversion methods*2		
		Bitstream	96k Sound	PCM
DVD videos	DOLBY DIGITAL			
	Linear PCM	48 kHz/16 bit	No conversion is made. (Same kHz/bit as the source)	
		48 kHz/20 bit	48 kHz/16 bit	48 kHz/16 bit
		48 kHz/24 bit		
		96 kHz/16 bit		
		96 kHz/20 bit		
		96 kHz/24 bit		
	DTS	DTS	DTS	❽ No sound
VIDEO CDs	MPEG1	Converted to 44.1 kHz/16 bit		
Audio CDs	Linear PCM 44.1kHz/16 bit	No conversion is made. (Same kHz/bit as the source)		
	DTS	DTS	DTS	DTS

*1 Some discs have more than one sound system and can be selected (see page 39).

*2 You can change the conversion method temporarily as described on the previous page, or permanently using the setting menu (see pages 44 and 50).

*3 The digital signals will be converted through the D/A (Digital-to-Analog) converter. When the digital signals are being converted using higher frequency and higher quantization, better analog signals will be obtained.

Sound signals from the Digital output connector and Analog output jacks

		Digital output signals from the DIGITAL OUTPUT OPTICAL connector			kHz/bit when converting Digital Signals to Analog Signals for Analog jacks*3			
		Conversion methods*2			Conversion methods*2			
Discs	Sound systems*1	Bitstream	96k Sound	PCM	Bitstream	96k Sound	PCM	
DVD videos	DOLBY DIGITAL		Bitstream	❷ Bitstream	❷ 48 kHz/16 bit	48 kHz/20 bit	48 kHz/20 bit	48 kHz/20 bit
	Linear PCM	48 kHz/16 bit	No conversion is made. (Same kHz/bit as the source)			48 kHz/16 bit	48 kHz/16 bit	48 kHz/16 bit
		48 kHz/20 bit	48 kHz/16 bit	48 kHz/16 bit	48 kHz/16 bit	48 kHz/20 bit	48 kHz/20 bit	48 kHz/20 bit
		48 kHz/24 bit		❹ 48 kHz/24 bit		48 kHz/20 bit		
		96 kHz/16 bit		No signal is output.		48 kHz/16 bit	96 kHz/16 bit	48 kHz/16 bit
		96 kHz/20bit				48 kHz/20 bit	96 kHz/20 bit	48 kHz/20 bit
		96 kHz/24 bit				48 kHz/20 bit	96 kHz/24 bit	
	DTS		Bitstream	Bitstream	❾ No signal	❽ No signal		
	VIDEO CDs	MPEG1	Converted to 44.1 kHz/16 bit			Converted in 44.1 kHz/16 bit		
Audio CDs	Linear PCM 44.1 kHz/16 bit	No conversion is made. (Same kHz/bit as the source)			Converted in 44.1 kHz/16 bit			
	DTS	Bitstream			❽ No Signal			

Using the On-Screen Display

You can view information about a disc and its operational status on the TV screen and the DVD Receiver's display.

DVD VCD CD

Checking the Operational Status

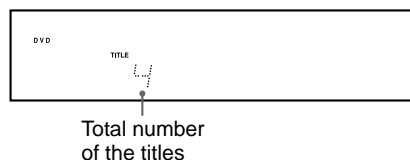
You can view the current title number, track number, and total playing time of the disc.

When the disc is inserted in the DVD Receiver

The following information appears in the DVD Receiver's display for about five seconds.

DVD video*

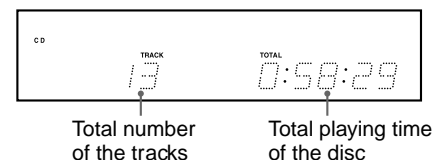
e.g.



* Playback may automatically start depending on the DVD video. In this case, the information on the left doesn't appear.

VIDEO CD/Audio CD

e.g.



DISPLAY

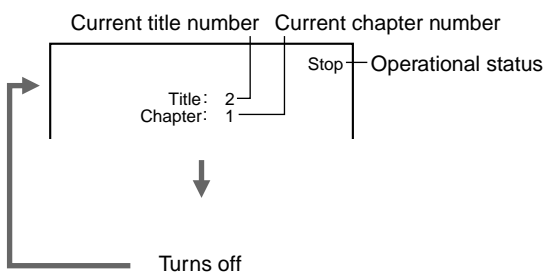


Press DISPLAY while the disc is stopped.

Each time you press DISPLAY, the on-screen display on the TV screen changes as follows.

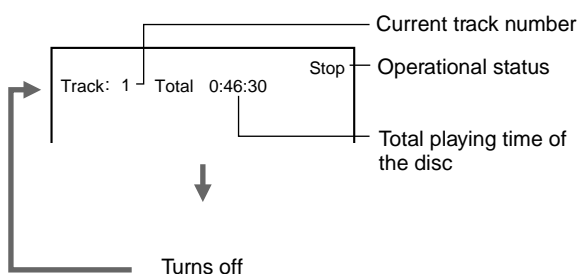
DVD video

e.g.



VIDEO CD/Audio CD

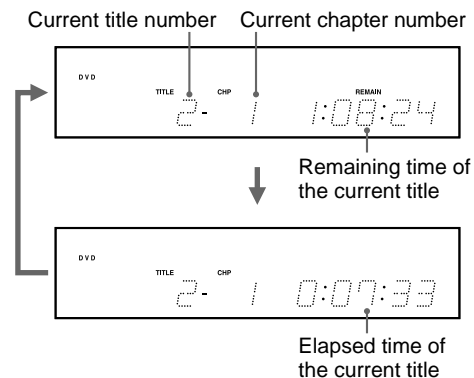
e.g.



Each time you press DISPLAY, the DVD Receiver's display changes as follows.

DVD video

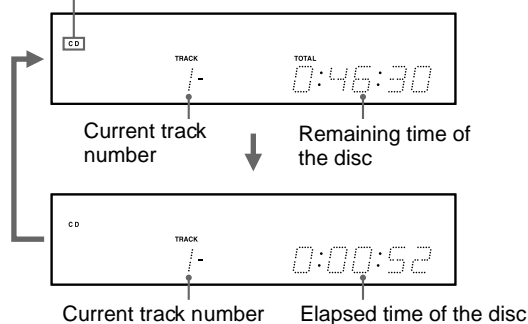
e.g.

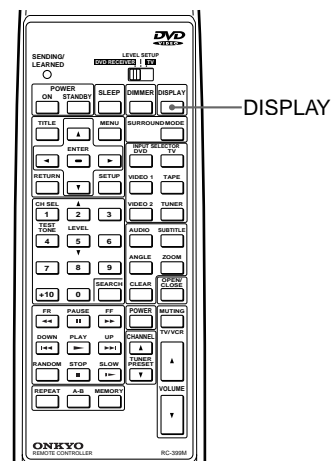
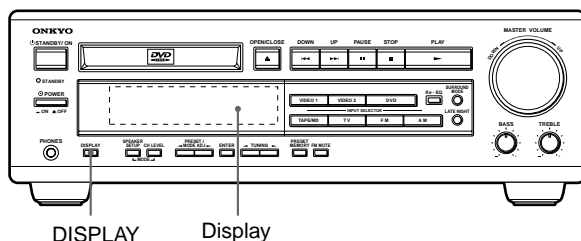


VIDEO CD/Audio CD

e.g.

When an audio CD is inserted, "CD" is lit.





DVD VCD CD

Checking the Remaining Time and Setting Status

You can view the elapsed time, remaining time, and setting status of the disc.

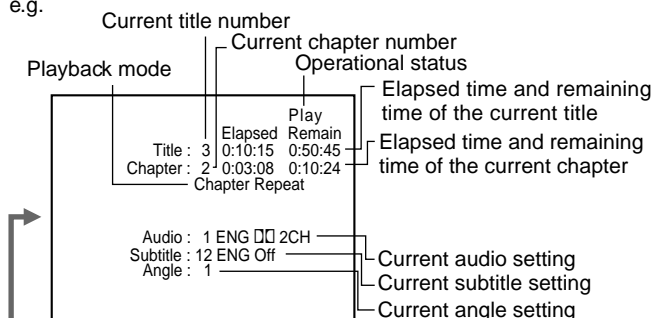


Press DISPLAY during playback.

Each time you press DISPLAY, the on-screen display on the TV screen changes as follows.

DVD video

e.g.



The abbreviation of the language (e.g. ENG) appears instead of the language name. See the list of languages and their abbreviations on page 46.

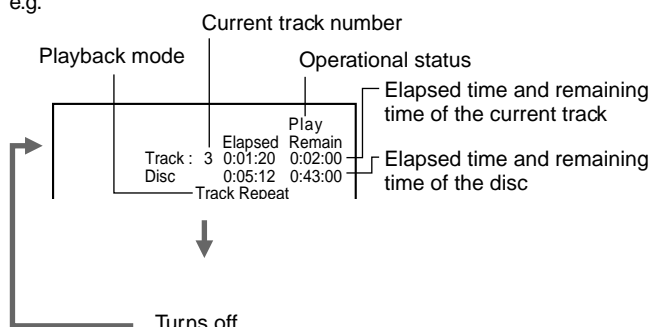


Data transfer rate (Mbit/s):
The amount of picture, sound and subtitle data in the DVD video transferred per second.
The larger the value is, the faster data is processed, but this does not necessarily ensure better picture quality.

Turns off.

VIDEO CD/Audio CD

e.g.

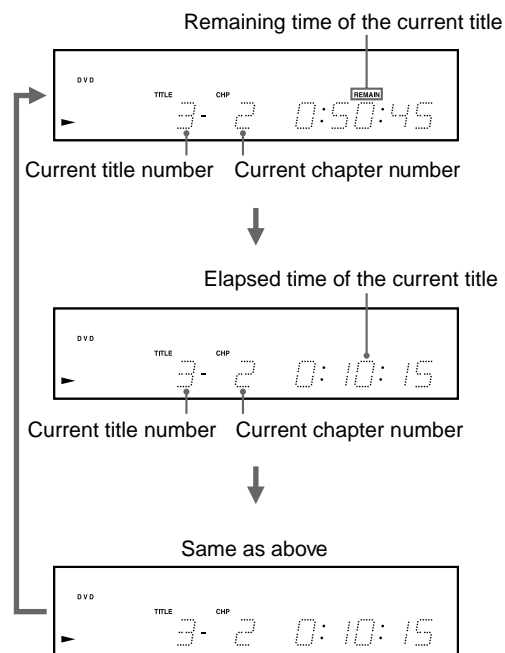


Turns off.

Each time you press DISPLAY, the DVD Receiver's display changes as follows.

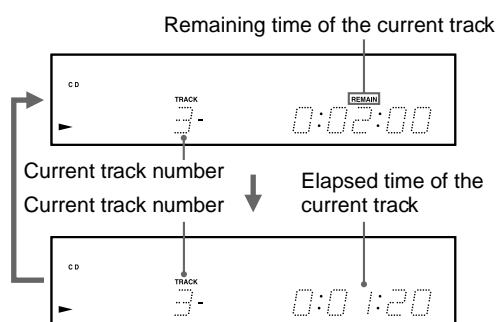
DVD video

e.g.



VIDEO CD/Audio CD

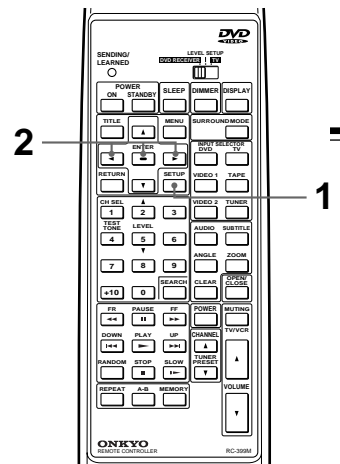
e.g.



Customizing the Function Settings



When you insert a DVD Video, VIDEO CD, or audio CD, the various functions of the DVD Receiver will be set (reset) according to the setting menu. You can customize this setting menu according to your preference.



DVD VCD CD

Selecting a Setting Category

The setting menu asks you to select a setting category from among LANGUAGE, PICTURE, AUDIO, DISPLAY, and OPERATION. Each selected category will provide you with setting details.

1

Press SETUP while the disc is stopped.

The following on-screen display appears.

Notes

- The on-screen display disappears when you press SETUP.
- SETUP can function even during normal playback. However, if an operation is inaccessible, a message will appear. In this case, try again after playback is stopped.

2

Press ◀▶ to select the category, then press ENTER.

category

Setting		Details	Page
On-Screen Language	DVD VCD CD	To select a preferred language for on-screen displays.	46
Disc menu Language	DVD	To select a preferred language for disc menus.	46
Audio Language	DVD	To select a preferred language for the sound track.	47
Subtitle Language	DVD	To select preferred language for subtitles.	47
TV Shape	DVD	To select a picture size according to the aspect ratio of your TV	48
Black Level	DVD VCD	To select the black level of playback pictures.	49
Audio Out Select	DVD VCD CD	To select a sound signal conversion method according to your purpose and preference.	50
Dynamic Range Control	DVD	To turn on or off a function that makes faint sounds easier to hear even if you lower the volume during late night playback.	51
Karaoke Vocal	DVD	To turn on or off the vocal output during KARAOKE disc playback.	51
Extended Audio Features	DVD	To turn on or off narration for visually impaired persons.	51
On-Screen Displays	DVD VCD CD	To turn on or off the operational status display (On-screen display) on the TV screen.	52
OSD Background Color	DVD VCD CD	To select the background color for on-screen displays.	52
Extended Subtitle Features	DVD	To turn on or off special subtitles for hearing impaired persons.	52
Screen Saver	DVD VCD	To turn on or off the screen saver.	53
Pause/Still	DVD	To select the resolution of still pictures. (Field/Frame)	54
Parental Lock	DVD	To turn on or off the parental lock function.	54
Title Stop	DVD	To turn on or off a feature that automatically stops playback after a title has finished.	56
PBC	VCD	To use the menu screen when playing a PBC-controllable VIDEO CD.	56

(Continued)

Customizing the Function Settings (continued)



After you select LANGUAGE (see page 44), change the settings according to your preference.

DVD VCD CD

LANGUAGE Setting

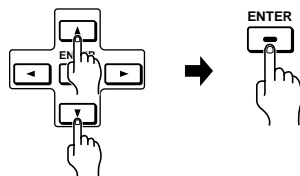
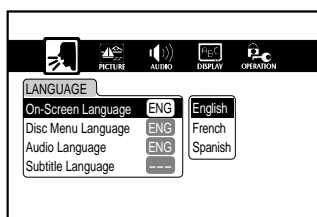
3

(Continued from page 45)

Press ▲/▼ to select the item, then press ENTER.

On-Screen Language

DVD VCD CD

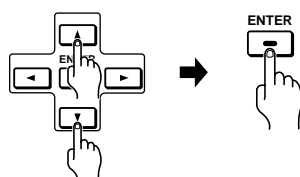
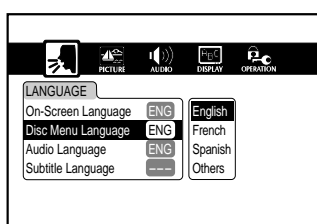


Select a preferred language by pressing ▲/▼, then press ENTER.

→ If you do not want to make any other settings, proceed to step 4.

Disc Menu Language

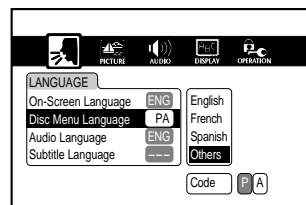
DVD



Select a preferred language by pressing ▲/▼, then press ENTER.

→ If you do not want to make any other settings, proceed to step 4.

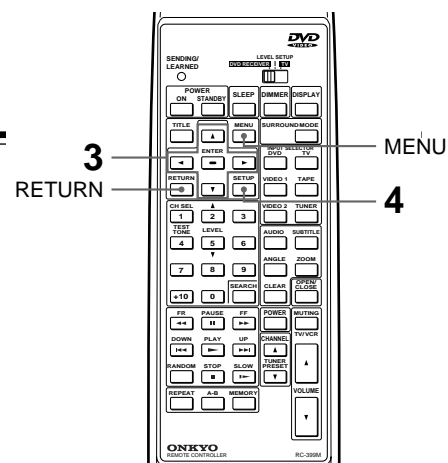
■ To select other languages:



- 1) Select "Others" and press ENTER.
- 2) Obtain the abbreviation of the preferred language from the list (see page 46).
- 3) Select the first character by pressing ▲/▼.
- 4) Press ◀▶ to shift and select the second character by pressing ▲/▼.
- 5) Press ENTER.

- Some DVD videos may not include your preferred language. In this case, the DVD Receiver automatically displays disc menus consistent with the disc's initial language setting.

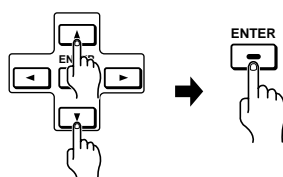
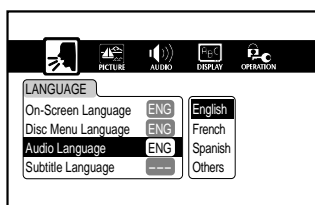
(Continued on next page)



If you press RETURN while a menu appears on the screen, you will return to the previously displayed menu screen.

(Continued)

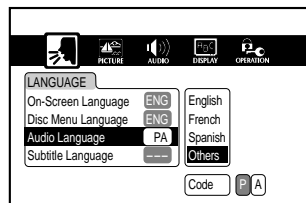
Audio Language



Select a preferred language by pressing ▲/▼, then press ENTER.

→ If you do not want to make any other settings, proceed to step 4.

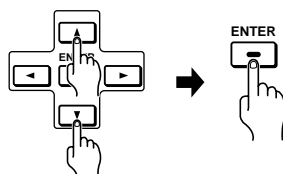
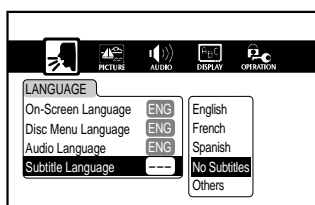
■ To select other languages:



- 1) Select "Others" and press ENTER.
- 2) Obtain the abbreviation of the preferred language from the list (see page 57).
- 3) Select the first character by pressing ▲/▼.
- 4) Press ◀/▶ to shift and select the second character by pressing ▲/▼.
- 5) Press ENTER.

- Some DVD videos may be played in a different language than you selected. An initial language may be programmed on the disc.

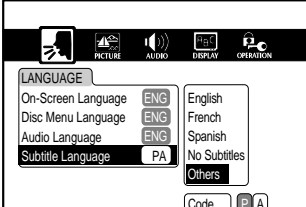
Subtitle Language



Select a preferred language by pressing ▲/▼, then press ENTER.

→ If you do not want to make any other settings, proceed to step 4.

■ To select other languages:



- 1) Select "Others" and press ENTER.
- 2) Obtain the abbreviation of the preferred language from the list (see page 57).
- 3) Select the first character by pressing ▲/▼.
- 4) Press ◀/▶ to shift and select the second character by pressing ▲/▼.
- 5) Press ENTER.

- If you select "No Subtitles," subtitles are not displayed.
- Some DVD videos may be set to display subtitles in a different language than you selected. An initial subtitle language may be programmed on the disc.
- Some DVD videos allow you to change subtitle selections only by using the disc menu. If this is the case, press MENU and choose the appropriate subtitle language from the selection on the disc menu.

4

SETUP



Press SETUP.

The setting menu disappears.

Customizing the Function Settings (continued)

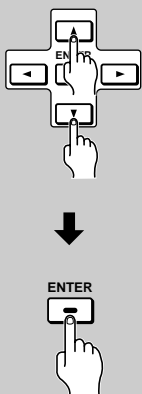


After you select PICTURE (see page 44), change the settings according to your preference.

DVD VCD

PICTURE Setting

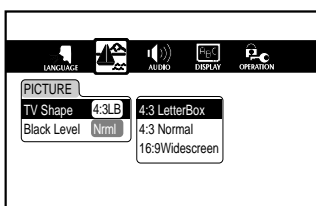
3



(Continued from page 45)

Press ▲/▼ to select the item, then press ENTER.

TV Shape DVD



4:3 LetterBox

Select when a 4:3 TV is connected.

Displays widescreen images with masking bars above and below the picture.



4:3 Normal

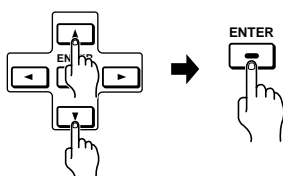
Select when a 4:3 TV is connected.

Displays pictures cropped to fill your TV screen. Either or both sides of the picture are cut off.



16:9 Widescreen

Select when a 16:9 wide TV is connected.

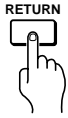


Select your TV type by pressing ▲/▼, then press ENTER.

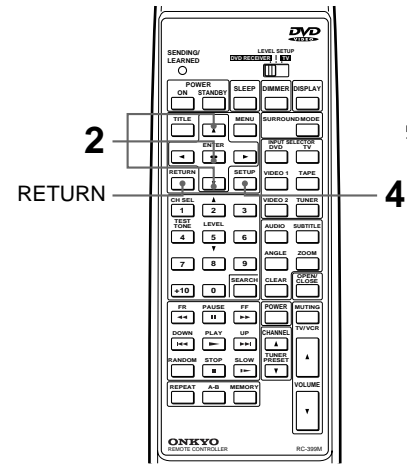
→ If you do not want to make any other settings, proceed to step 4.

- The displayable picture size is preset on each DVD video. Therefore, the playback picture of some DVD videos may not conform to the picture size you select.
- When you play a DVD video recorded in the 4:3 picture size only, the playback picture always appears in the 4:3 picture size regardless of the TV shape setting.
- If you select "16:9 Widescreen" and you own a 4:3 TV set, the DVD playback picture will be horizontally distorted during playback. Images will appear to be horizontally compressed. Make sure the TV shape conforms to the actual TV in use.

(Continued on next page)



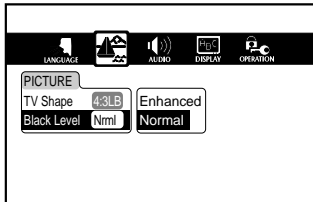
If you press RETURN while a menu appears on the screen, you will return to the previously displayed menu screen.



(Continued)

Black Level

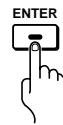
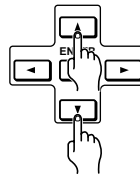
DVD VCD



Set according to your preference and the TV's capability.

Enhanced: Expanded black level. (0 IRE)

Normal: Standard black level. (7.5 IRE)



Select the black level by pressing **▲/▼**, then press **ENTER**.

→ If you do not want to make any other settings, proceed to step 4.

4



Press SETUP.

The setting menu disappears.

Customizing the Function Settings (continued)

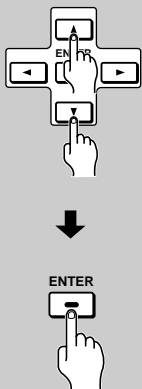


After you select AUDIO (see page 44), change the settings according to your preference.

DVD VCD CD

Audio Setting

3

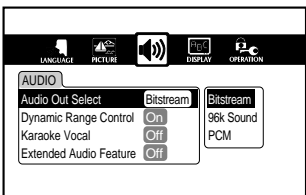


(Continued from page 45)

Press ▲/▼ to select the item, then press ENTER.

Audio Out Select

DVD VCD CD



The output sound format can be changed according to your purpose and preference by changing the sound signal conversion method.

The sound signal conversion method is selected from among the three listed below. (Note that the three items are sound signal conversion methods, not the sound signal format the sound signals are converted into.)

When “Audio Out Select” is set to “Bitstream,” the sound is output in the most suitable format automatically through the speakers and output connector/jacks. Therefore, although you can change the sound signal conversion method using the menu, leaving the “Audio Out Select” setting to “Bitstream” and changing the method according your purpose temporarily as described on page 40 is recommended.

For details (tips on using of this function, sampling frequency and quantization bit conversion table, etc.), see pages 40 and 41.

Bitstream

Normally use this setting.

96k Sound

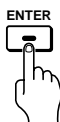
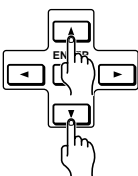
Select when you wish to listen to sources recorded in the following frequency/quantization bit in their original sound quality:

- 96 kHz/24 bit
- 96 kHz/20 bit
- 96 kHz/16 bit
- 48 kHz/24 bit

For instructions on how to reproduce the above original sounds, see page 40.

PCM

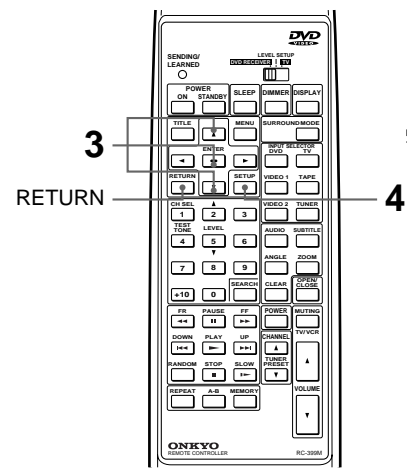
Select to convert DOLBY DIGITAL sound into the sound format recordable by equipment such as an MD recorder connected to the DIGITAL OUTPUT OPTICAL connector on the DVD Receiver (see pages 11 and 41).



Select the output sound type by pressing ▲/▼, then press ENTER.

→ If you do not want to make any other settings, proceed to step 4.

(Continued on next page)



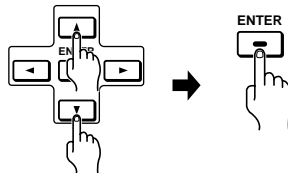
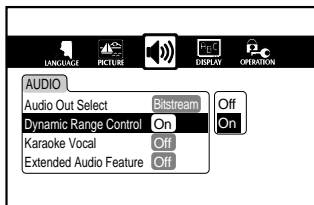
If you press RETURN while a menu appears on the screen, you will return to the previously displayed menu screen.

(Continued)

Dynamic Range Control



On: Dynamic range is reduced.
Off: Full dynamic range is maintained.



Select "On" or "Off" by pressing ▲/▼, then press ENTER.

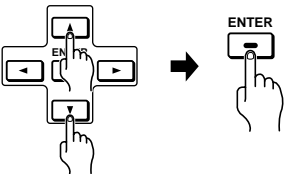
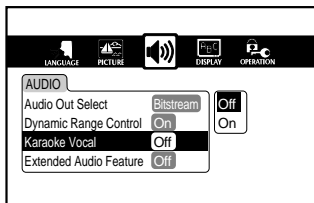
→ If you do not want to make any other settings, proceed to step 4.

- This function works only with playback of Dolby Digital recorded discs.
- The level of Dynamic Range Reduction may differ depending on the DVD video.

Karaoke Vocal



On: The primary vocal is output if it is recorded on the disc.
Off: The primary vocal is not output.



Select "On" or "Off" by pressing ▲/▼, then press ENTER.

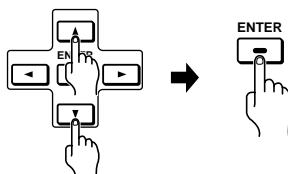
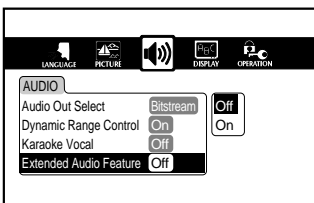
→ If you do not want to make any other settings, proceed to step 4.

The vocal output feature is used during playback of Dolby Digital (multi-channel) recorded DVD KARAOKE discs. This feature allows you to turn off vocal audio tracks, or restore them for background accompaniment.

Extended Audio Features



On: Some DVD videos contain a narration track that describes the actions on-screen for visually impaired persons. The DVD Receiver automatically plays this special feature.
Off: The DVD Receiver does not play this special feature.



Select "On" or "Off" by pressing ▲/▼, then press ENTER.

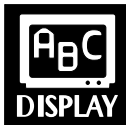
→ If you do not want to make any other settings, proceed to step 4.



Press SETUP.

The setting menu disappears.

Customizing the Function Settings (continued)

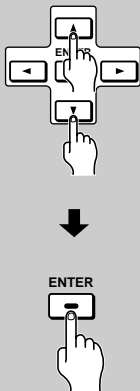


After you select DISPLAY (see page 44), change the settings according to your preference.

DVD VCD CD

DISPLAY Setting

3

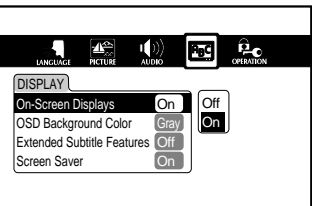


(Continued from page 45)

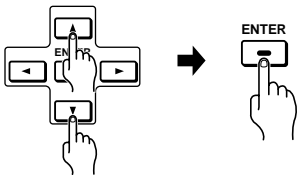
Press ▲/▼ to select the item, then press ENTER.

DVD VCD CD

ON-Screen Display



On: Operational modes are displayed on-screen. (e.g. "PLAY",)
Off: Operational modes are not displayed.

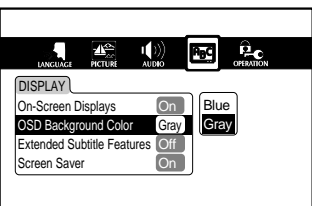


Select "On" or "Off" by pressing ▲/▼, then press ENTER.

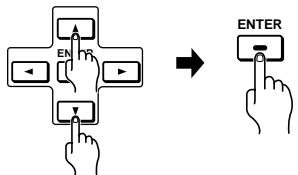
→ If you do not want to make any other settings, proceed to step 4.

DVD VCD CD

OSD Background Color



Gray: Gray background.
Blue: Blue background.

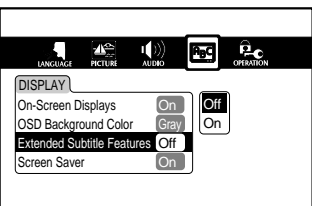


Select the background color by pressing ▲/▼, then press ENTER.

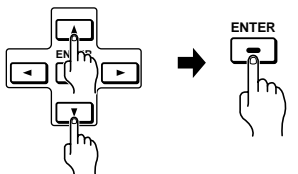
→ If you do not want to make any other settings, proceed to step 4.

DVD

Extended Subtitle Features



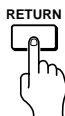
On: Some DVD videos contain special subtitles, an enhancement of closed captions for hearing impaired persons. The DVD Receiver automatically displays these special subtitles.
Off: The DVD Receiver does not display these special subtitles.



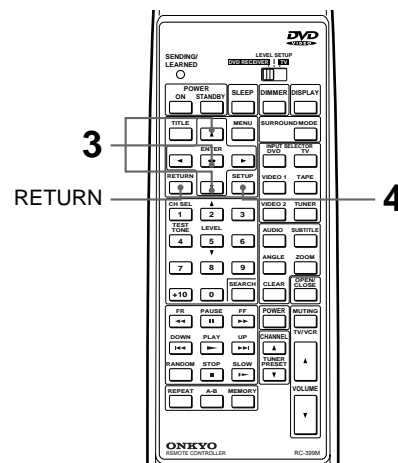
Select "On" or "Off" by pressing ▲/▼, then press ENTER.

→ If you do not want to make any other settings, proceed to step 4.

(Continued on next page)

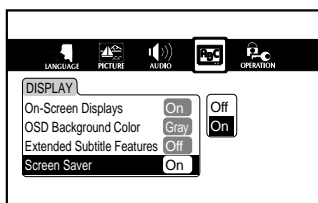


If you press RETURN while a menu appears on the screen, you will return to the previously displayed menu screen.

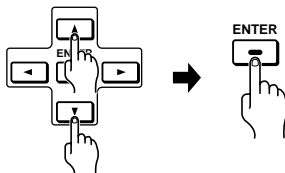


(Continued)

Screen Saver



On: The screen saver is enabled.
Off: The screen saver is disabled.



Select "On" or "Off" by pressing ▲/▼, then press ENTER.

→ If you do not want to make any other settings, proceed to step 4.

4



Press SETUP.

The setting menu disappears.

Customizing the Function Settings (continued)

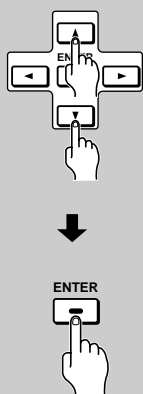


After you select OPERATION (see page 44), change the settings according to your preference.

DVD

OPERATION Setting

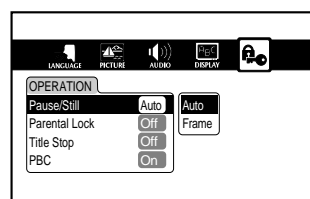
3



(Continued from page 45)

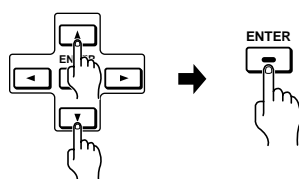
Press ▲/▼ to select the item, then press ENTER.

Pause / Still



Auto: For normal use. The image can be paused without shaking.

Frame: The resolution of still pictures is improved so that you can make a motionless picture clearer when you pause it.



Select "Auto" or "Frame" by pressing ▲/▼, then press ENTER.

→ If you do not want to make any other settings, proceed to step 4 on page 56.

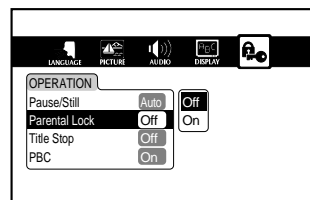
Parental Lock



Parental Lock

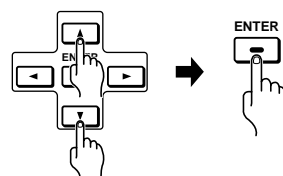
DVD videos equipped with the parental lock function are rated according to their content. The content allowed by a parental lock level and the way a DVD video can be controlled may vary from disc to disc. For example, some discs allow you to edit out violent scenes unsuitable for children and replace them with more suitable scenes, or lock out playback of the disc altogether.

- DVD videos may or may not respond to the parental lock settings. This is not a defect in the DVD Receiver. Make sure this function works with your DVD videos.



On: Select to activate the parental lock feature or change the settings. The next screen will appear for detailed settings. (See page 55.)

Off: The parental lock feature is disabled.



Select "On" or "Off" by pressing ▲/▼, then press ENTER.

Press the number buttons to create a personal 4-digit security code, then press ENTER.

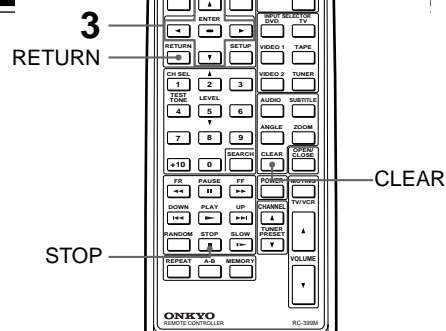
If you make a mistake before pressing ENTER, press CLEAR and enter your 4-digit security code again.

→ If you do not want to make any other settings, proceed to step 4 on page 56.

(Continued on next page)

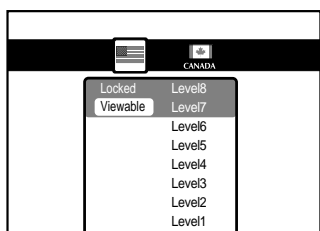
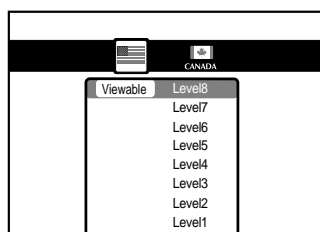


If you press RETURN while a menu appears on the screen, you will return to the previously displayed menu screen.



(Continued)

■ When you select "On" on page 54 :



- 1) Press ◀▶ to select the country whose standards were used to rate the DVD video.

- 2) Press ▲▼ to select the parental lock level, then press ENTER.

You cannot play DVD videos rated higher than the level you selected unless you cancel the parental lock function. For example, when you select level 7, discs rated higher than level 7 are locked out and cannot be played.

The parental lock levels are equivalent to the following USA movie ratings.

LEVEL 7: NC-17	LEVEL 3: PG
LEVEL 6: R	LEVEL 1: G
LEVEL 4: PG 13	

The parental lock levels for "CANADA" are included for future use. Check the appropriate parental lock level when you buy a DVD video equipped with the parental lock feature.

■ To change the parental lock level:

Follow the above procedure.

■ To change your 4-digit security code:

- (1) After selecting "On" or "Off" on page 54, press STOP four times, then press ENTER.

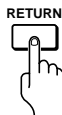


The 4-digit security code is cleared.

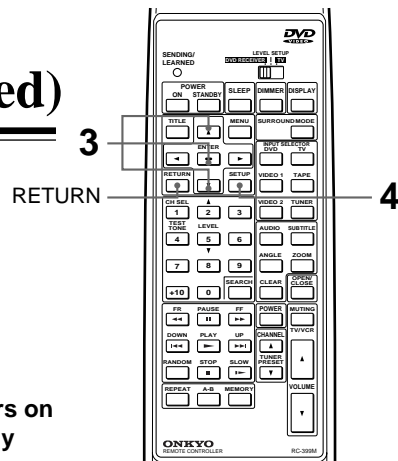
- (2) Press the number buttons to create a new 4-digit security code.
- (3) Press ENTER.

(Continued on next page)

Customizing the Function Settings (continued)



If you press RETURN while a menu appears on the screen, you will return to the previously displayed menu screen.



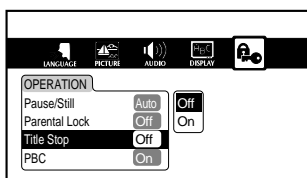
DVD

OPERATION Setting (continued)

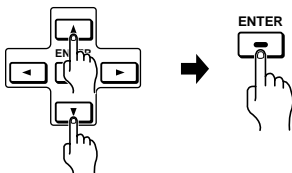
(Continued)

Title Stop

DVD



On: The DVD Receiver stops after playback of a title is complete.
Off: The DVD Receiver continues after playback of a title is complete.

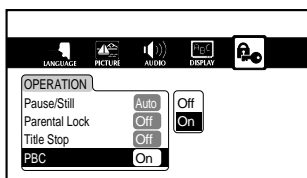


Select "On" or "Off" by pressing ▲/▼, then press ENTER.

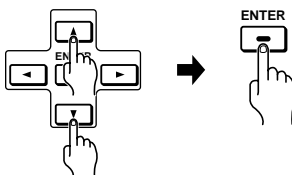
→ If you do not want to change any other settings, proceed to step 4.

PBC

VCD



On: To view the menu screen when playing a PBC-featured VIDEO CD.
Off: For playing a PBC-featured VIDEO CD without using the menu screen.



Select "On" or "Off" by pressing ▲/▼, then press ENTER.

→ If you do not want to make any other settings, proceed to step 4.

* PBC is the abbreviation for Playback Control.

4



Press SETUP.

The setting menu disappears.

Table of Languages

Table of Languages and Their Abbreviations

Abbreviation of the Language	Language	Abbreviation of the Language	Language	Abbreviation of the Language	Language	Abbreviation of the Language	Language
—	No alternate language	EO	Esperanto	LN	Lingala	SL	Slovenian
CHI (ZH)	Chinese	ET	Estonian	LO	Laotian	SM	Samoan
DUT (NL)	Dutch	EU	Basque	LT	Lithuanian	SN	Shona
ENG (EN)	English	FA	Persian	LV	Latvian, Lettish	SO	Somali
FRE (FR)	French	FI	Finnish	MG	Malagasy	SQ	Albanian
GER (DE)	German	FJ	Fiji	MI	Maori	SR	Serbian
ITA (IT)	Italian	FO	Faroese	MK	Macedonian	SS	Siswati
JPN (JA)	Japanese	FY	Frisian	ML	Malayalam	ST	Sesotho
KOR (KO)	Korean	GA	Irish	MN	Mongolian	SU	Sundanese
MAY (MS)	Malay	GD	Scottish Gaelic	MO	Moldavian	SV	Swedish
SPA (ES)	Spanish	GL	Galician	MR	Marathi	SW	Swahili
AA	Afar	GN	Guarani	MT	Maltese	TA	Tamil
AB	Abkhazian	GU	Gujarati	MY	Burmese	TE	Telugu
AF	Afrikaans	HA	Hausa	NA	Nauru	TG	Tajik
AM	Amharic	HI	Hindi	NE	Nepali	TH	Thai
AR	Arabic	HR	Croatian	NO	Norwegian	TI	Tigrinya
AS	Assamese	HU	Hungarian	OC	Occitan	TK	Turkmen
AY	Aymara	HY	Armenian	OM	(Afan) Oromo	TL	Tagalog
AZ	Azerbaijani	IA	Interlingua	OR	Oriya	TN	Setswana
BA	Bashkir	IE	Interlingue	PA	Panjabi	TO	Tongan
BE	Belorussian	IK	Inupiak	PL	Polish	TR	Turkish
BG	Bulgarian	IN	Indonesian	PS	Pashto, Pushto	TS	Tsonga
BH	Bihari	IS	Icelandic	PT	Portuguese	TT	Tatar
BI	Bislama	IW	Hebrew	QU	Quechua	TW	Twi
BN	Bengali, Bangla	JI	Yiddish	RM	Rhaeto-Romance	UK	Ukrainian
BO	Tibetan	JW	Javanese	RN	Kirundi	UR	Urdu
BR	Breton	KA	Georgian	RO	Rumanian	UZ	Uzbek
CA	Catalan	KK	Kazakh	RU	Russian	VI	Vietnamese
CO	Corsican	KL	Greenlandic	RW	Kinyarwanda	VO	Volapük
CS	Czech	KM	Cambodian	SA	Sanskrit	WO	Wolof
CY	Welsh	KN	Kannada	SD	Sindhi	XH	Xhosa
DA	Danish	KS	Kashmiri	SG	Sango	YO	Yoruba
DZ	Bhutani	KU	Kurdish	SH	Serbo-Croatian	ZU	Zulu
EL	Greek	KY	Kirghiz	SI	Singhalese		
		LA	Latin	SK	Slovak		

Recording Using the Connected Equipment

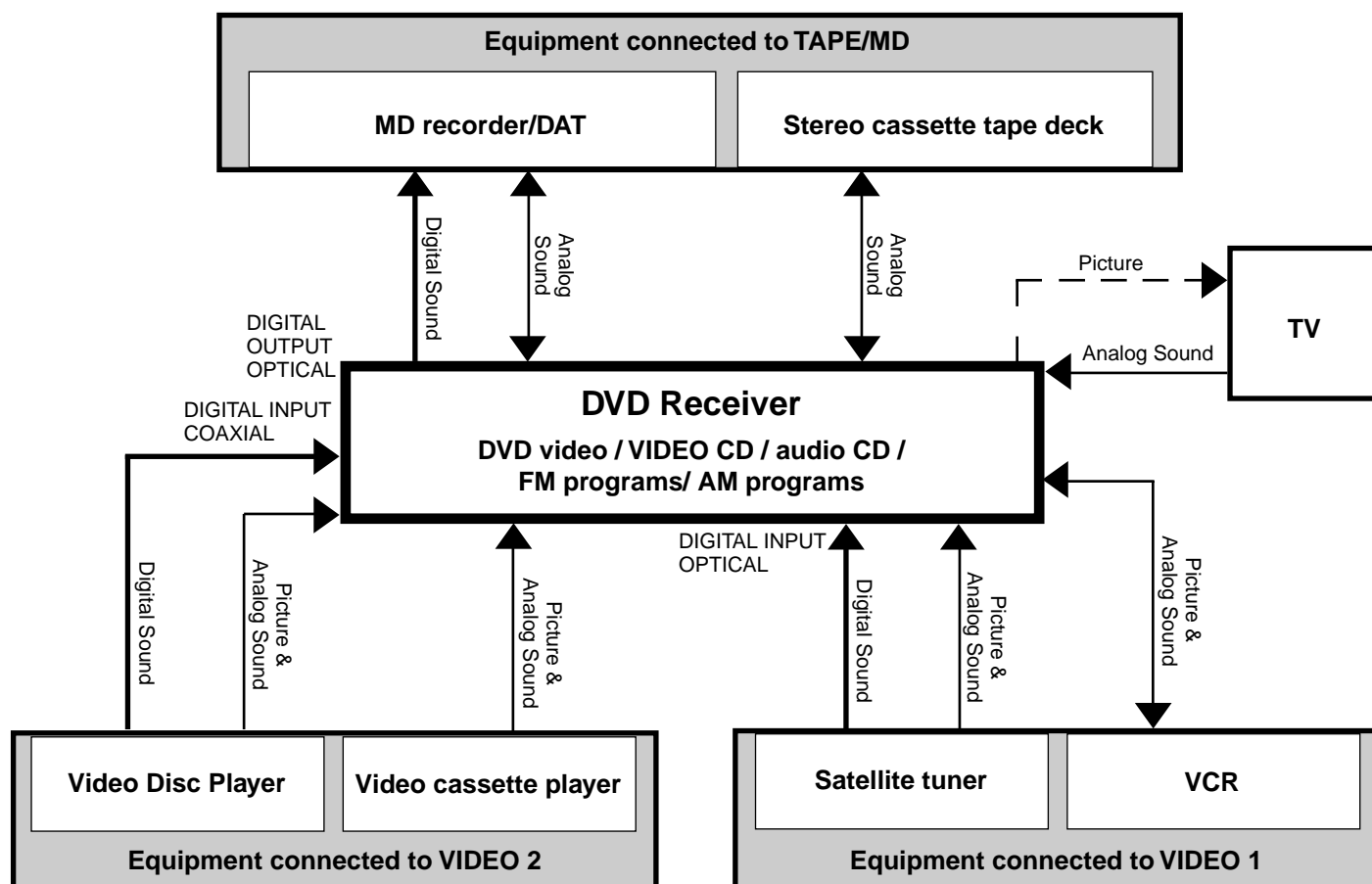
You can record according to the following using the connected recording equipment:

- Sound/picture of discs played back by the DVD Receiver,
- Sound of FM/AM programs, and
- Sound/picture of the connected source.

Note

Many discs and sources are copy protected. Copy protected sources are impossible to record.

■ **Simplified diagram of the connected equipment (See also pages 10 and 11 for the actual connections.)**



Basic Recording Procedure

1	Set the recording equipment (MD recorder, DAT, Stereo cassette tape deck, VCR, etc.) to recording pause.
2	Select the input source to be recorded, then set it to play pause. <ul style="list-style-type: none"> • To play and pause a DVD video, VIDEO CD, or audio CD, see page 20. • To select an FM/AM program, see page 26. • To select a connected source, see page 28. Refer to the manuals of the connected source equipment for instructions on how to play and pause.
3	Release the recording pause set in step 1 to start recording.
4	Start playback of the selected source in step 2.

Notes

- If you select another input source during recording, the selected source will be recorded.
- Surround and DSP effects, LATE NIGHT, Re-EQ, and each speaker's relative volume balance (see pages 30 to 32) do not affect the recorded sound whereas the sound set in the AUDIO setting menu (see pages 48 and 49) will be recorded.

■ Recording the Picture and Sound From Different Sources at the Same Time

The picture from the VIDEO 2 source continues to be output through the VIDEO OUT jacks even if you change to another audio source (TAPE/MD, FM, or AM) or TV.

Therefore if you select VIDEO 2 first, then select TAPE/MD, FM, AM, or TV, you can record the picture from the VIDEO 2 source and the sound from the TAPE/MD, FM, AM, or TV at the same time, using the recording equipment connected to the VIDEO 1 jacks.

■ Digital recording from the source connected to the digital input connectors to the digital recording equipment connected to the digital output connector

The digital input connectors are as follows:

- The DIGITAL INPUT OPTICAL VIDEO 1 connector, and
- The DIGITAL INPUT COAXIAL VIDEO 2 connector.

The digital output connector is the DIGITAL OUTPUT OPTICAL connector.

Recording digital sound signals from sources connected to the digital input connectors using digital recording equipment connected to the digital output is possible unless:

- The recording is against SCMS (Serial Copy Management System) rules (for details of SCMS rules, refer to the manual of the digital recording equipment),
- The digital sound signals are copy protected,
- The digital signals are in bitstream format (the recordable digital signal format is PCM — two channel digital stereo sound signals), or
- The sampling frequency is out of the recordable range of the recording equipment (for recordable sampling frequency, refer to the manual of the digital recording equipment). Note that the maximum signal frequency output from the DVD Receiver is 48 kHz.

■ Analog recording from a DVD Video

The digital sound signals are converted to analog signals and output to the analog output jacks unless the DVD video is recorded in the DTS Surround system.

Although the speakers can reproduce DTS Surround sounds, DTS signals are not converted to analog signals. Therefore, no analog signals are output for recording. See ❸ in the tables on page 41.

Tips to obtain better analog signals (only when the reproduced sound signals are in the PCM format)

The digital signals will be converted through the D/A (Digital-to-Analog) converter. When the digital signals are being converted using higher frequency (kHz) and higher quantization (bit), better analog signals will be obtained.

To convert PCM signals using the higher frequency and higher quantization, set the sound signal conversion method to “96k Sound.” See page 40 and ❶ in the table on page 41.

Note

Although better analog signals can be obtained with the “96k Sound” conversion method reproduced PCM signals may not be output from the digital output connector (DIGITAL OUTPUT OPTICAL) depending on frequency and quantization. See also “Note” in “Digital recording from a DVD video played by the DVD Receiver” below.

■ Digital recording from a DVD video

The digital sound signals are output to the DIGITAL OUTPUT OPTICAL connector in the most suitable format when the sound signal conversion method is set to “Bitstream” (see page 40). However, if the conversion method is set to “Bitstream” or “96k Sound” when DOLBY DIGITAL Surround sound is reproduced, the signals will be output in the bitstream format from the DIGITAL OUTPUT OPTICAL connector as in ❷ in the table on page 41. The bitstream signals are unrecordable.

Therefore, to record DOLBY DIGITAL Surround sounds you need to change the conversion method to “PCM.” Once the conversion method is changed to “PCM,” the DOLBY DIGITAL sound signals are converted into the recordable frequency and quantization (48 kHz/16 bit) as in ❸ in the same table mentioned above.

DTS Surround sound is unrecordable from both the digital output connector and analog output jacks regardless of the sound signal conversion methods.

Notes

- If the conversion method is set to “PCM,” the DTS Surround sounds of a DVD video will not be reproduced from the speakers nor output to the DIGITAL OUTPUT OPTICAL connector. See ❹ in the tables on page 41.
- If the sound signal conversion method is set to “96k Sound” to reproduce the high-frequency/high-quantization sound signals in their original sound quality (see page 40) or to obtain better analog signals (see on the left), the DIGITAL OUTPUT OPTICAL connector will output no signals depending on the frequency and quantization as in ❺ in the tables on page 41.
To record high frequency PCM sound signals, the conversion method must be set to “Bitstream” or “PCM,” so that the frequency/quantization are converted to the 48 kHz/16 bit format which is recordable.

■ Analog and Digital recording from a VIDEO CD

VIDEO CDs are recorded in the MPEG1 format. MPEG1 format will be output in the recordable form of 44.1 kHz/16 bit through the DIGITAL OUTPUT OPTICAL connector, and converted to analog signals in the 44.1 kHz/16 bit format, regardless of the conversion method. For details, see the table on page 41.

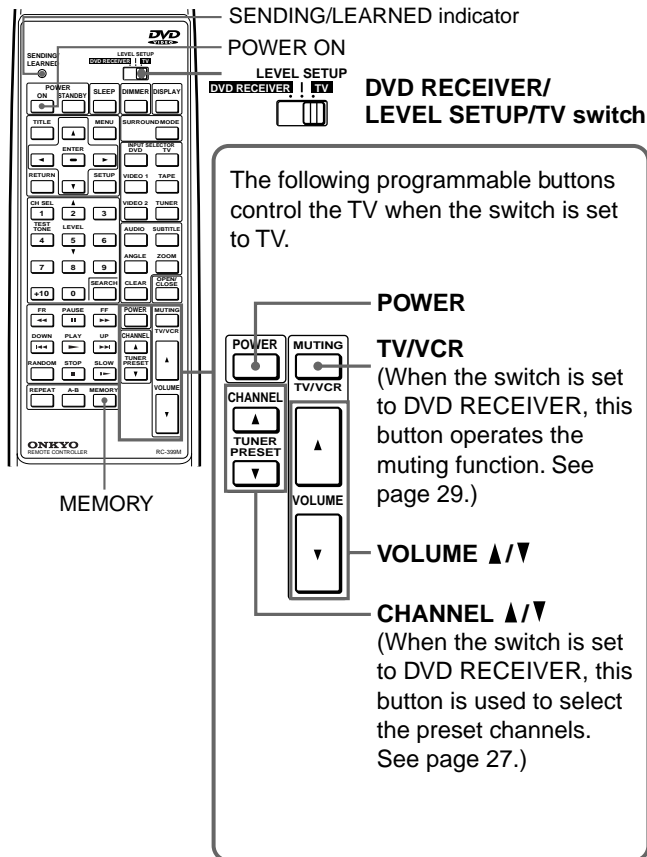
■ Analog and Digital recording from an audio CD

PCM sound signals are output to the DIGITAL OUTPUT OPTICAL connector, and converted to analog signals and output to the analog output jacks regardless of the conversion method.

DTS Surround sound is unrecordable. Because DTS Surround sound signals of an audio CD are output to the DIGITAL OUTPUT OPTICAL connector in the bitstream format and no signal will be output to the analog output jacks regardless of the conversion method. For details, see the table on page 41.

Customizing the Remote Controller to Your TV

You can customize the supplied remote controller (RC-399M) to operate your TV.



Programming the Remote Controller

Programming is carried out by copying the signal patterns of the TV's remote control buttons.

Before programming the remote controller

- Use new batteries for the remote controller and the TV's remote control. Using old batteries may result in a failure in programming or cause the programmed remote controller buttons to operate improperly.
- The remote controller and most of other remote controls transmit infrared rays, however, if the other remote control uses another method, programming is impossible.
- Although six buttons are prepared for operating the TV, the number of programmable buttons varies depending on the manufacturer and type of the other remote control.
- Turn off both the DVD Receiver and TV to prevent the units from undesired operation during programming.
- The remote control buttons on some TVs may have more than one function; however, only one function can be programmed per button.
- Refer also to the TV's instruction manual for details on its remote control operation and other information.

Note

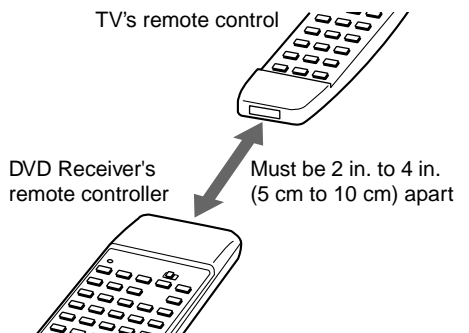
The programmed buttons of the DVD Receiver's remote controller may lose their data if the batteries become weak or dead, or due to other causes. In such a case, you need to repeat programming from the beginning using the TV's remote control. Therefore, keep the TV's remote control in a safe place even if it is not in use.



Set the DVD RECEIVER/LEVEL SETUP/TV switch to TV.

2

Place both the DVD Receiver's remote controller and the TV's remote control facing with each other on a flat level surface.



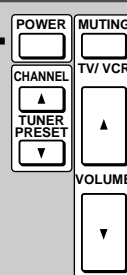
3



Press **MEMORY**.

Proceed to the next step within 15 seconds.

4

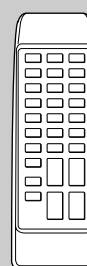


Press one of the programmable buttons on the DVD Receiver's remote controller.

The SENDING/LEARNED indicator lights up.

5

One of the TV's remote control buttons



While the **SENDING/LEARNED** indicator is lit, press the desired TV's remote control button whose function you wish to copy.

If the function is successfully copied, the SENDING/LEARNED indicator goes off. Repeat steps 3 to 5 to program other programmable buttons.

Note

If programming has failed because the data capacity of the programmable button has been exceeded or other reasons, the indicator flashes for five seconds.

If the programmed buttons do not operate properly

- If the SENDING/LEARNED indicator doesn't light up when you press one of the programmed buttons, reprogram the button.
- If the remote controller operates only at a short distance or there is a slow response from the TV, check the batteries. If the batteries are not weak, the pressed button is not properly programmed. Reprogram the button.
- If the remote controller remains without batteries for 30 minutes or more, the programmed data will be erased. In such a case, install new batteries, then reprogram the buttons.

Erasing all the programmed functions

- 1 Press **MEMORY**.
- 2 Within 5 seconds, press and hold **POWER ON**, then press and hold **MEMORY** at the same time until the SENDING/LEARNED indicator goes off.

Troubleshooting

Check the following guide for the possible cause of a problem before contacting service. Refer also to the respective instruction manuals of the connected components and TV.

	Symptoms	Causes	Remedies	Pages
Amplifier	The DVD Receiver doesn't switch on.	• The power plug is disconnected.	• Check the connection of the power cord.	17
		• There is external noise in the computer circuits of the DVD Receiver.	• Switch off the main power, then switch it on again. If not recovered, disconnect the power cord, then connect it again.	17
		• The AC fuse is blown.	• Contact your nearest ONKYO service center.	—
	No sound is reproduced.	• The muting function is activated.	• Deactivate the muting function.	29
		• The DVD Receiver is not properly connected.	• Check the connections to the DVD Receiver.	10 – 16
		• The amplifier protection circuitry has activated. (The STANDBY indicator flashes.)	• Contact your nearest ONKYO service center.	—
		• A wrong sound signal conversion method is selected.	• Check the current sound signal conversion method, and select the right one.	40, 41, 50, 59
	No sound or very little sound is reproduced from the center speaker.	• The speakers are not properly connected.	• Check the speaker connections.	12
		• The surround mode is set to "STEREO."	• Select the appropriate surround mode.	31
		• The volume level of the center speaker ("CENTER") is set to minimum.	• Adjust the volume level of the center speaker.	19, 32
		• The configuration of the center speaker ("CENTER SPEAKER") is set to "NONE."	• Set the configuration of the center speaker to "LARGE" or "SMALL."	14
	No picture appears on the TV screen. Or the picture from the DVD Receiver doesn't appear on the TV screen.	• The TV is not set to receive the output signals from the DVD Receiver.	• Set the TV to the DVD Receiver input.	—
		• The video cable is not connected securely.	• Check the connections between the DVD Receiver and TV set.	10
		• Only S video connection is made.	• Make also video connection.	10, 11
	The playback picture is occasionally distorted.	• The disc is dirty.	• Eject the disc and clean it.	9
		• It is in fast forward or fast reverse playback.	• Sometime a small amount of picture distortion may appear. This is not a malfunction.	—
DVD	The sound of the playback source is not heard.	• Another input source is selected.	• Select the appropriate input source.	28
	Brightness is unstable or noise is visible on playback picture.	• Copy protection is activated.	• Connect the DVD Receiver directly to the TV. Avoid connecting the DVD Receiver to the TV through a VCR.	17
	The buttons on the remote controller and DVD Receiver do not operate.	• Power supply fluctuations or other abnormalities such as static electricity may interrupt correct operation.	• Switch off the main power, then switch it on again. If not recovered, disconnect the power cord, then connect it again.	10, 11
	The DVD Receiver does not start playback.	• No disc is inserted.	• Insert a disc. (Check that "DVD," "VCD," or "CD" is lit in the DVD Receiver's display.)	20
		• An unplayable disc is inserted.	• Check the playable discs.	9
		• The disc is placed upside down.	• Place the disc with the playback side down.	20
		• The disc is not placed within the disc tray guide.	• Place the disc within the proper guide on the disc tray.	20
		• The disc is dirty.	• Eject the disc and clean it.	20, 9
		• The parental lock function is activated.	• Deactivate the parental lock function or change the parental lock level.	44, 54
	Playback doesn't follow the course of the disc's programs.	• The DVD Receiver is in repeat playback mode, memory playback mode, etc.	• These operations may prevent the original progress of the contents.	—

(Continued on next page.)

Troubleshooting (continued)

	Symptoms	Causes	Remedies	Pages
Tuner	Too much noise is heard or sound is interrupted occasionally. ("STEREO" indicator does not light steadily.)	• FM stereo waves may produce a hiss noise when a certain level is reached.	• Switch the frequency receiving mode to mono.	26
			• Lower the treble level.	29
		• The position or direction of the antenna is incorrect.	• Adjust the position, height, and direction of the antenna.	14
		• The station is too weak.	• Connect an outdoor FM antenna. Try to use an antenna with more elements. (For installation of the outdoor antenna, consult your nearest dealer as it requires special skills and experience.)	15
	Sound is distorted or sound volume decreases.	• The radio wave is distorted.	—	—
		• Cars are running or airplanes are flying near the house.	—	—
	Sound is excessively distorted.	• There is a tall building or a mountain nearby. [The waves transmitted from the transmission center (direct waves) and the waves diffracted by buildings or mountains (diffraction waves) interfere with each other causing multi pass distortion.]	—	—
	No preset channels are selected.	• The power cord is unplugged, or the main power is switched off, for a long time.	• The preset data in memory is lost. Preset the radio stations again.	26
Recording	Sound is reproduced from the speakers but not recorded.	• The sound system you are trying to record is DTS Surround.	• DTS Surround sound is unable to be recorded regardless of the sound signal conversion method.	41, 59
		• A wrong sound signal conversion method is selected.	• Check the current sound signal conversion method and select the right one for recording.	40, 41, 50, 59
Remote controller	The buttons on the DVD Receiver operate but the buttons on the remote controller do not operate.	• No batteries are inserted in the remote controller.	• Insert new batteries.	8
		• The batteries are worn out.	• Replace with new batteries.	8
		• The remote controller is not pointed at the remote sensor of the DVD Receiver.	• Point the remote controller at the remote sensor of the DVD Receiver.	8
		• The remote controller is too far from the DVD Receiver.	• Operate the remote controller within 16 feet (5 m).	8
		• The DVD RECEIVER/LEVEL SETUP/TV switch is set to the wrong position.	• Set the switch to the right position.	8

This unit contains a sensitive microcomputer, which under certain circumstances might fail to operate due to excessive noise interference. In such case, switch off the main power by pressing the POWER switch, wait five seconds, then switch it on again.

Specifications

AMPLIFIER SECTION		Output Level and Impedance	
Power Output (FTC)	All channels 55 watts per channel min. RMS. into 6 ohms two channel driven, 1,000 Hz with no more than 0.2 % total harmonic distortion.	REC OUT (TAPE, VIDEO 1)	200 mV, 2.2 kohms
Continuous power output (DIN)	All channels 50 watts per channel min. RMS. into 6 ohms two channel driven, 1,000 Hz	PREOUT (Subwoofer, Center)	1 V, 2.2 kohms
Total Harmonic Distorsion	0.2 % at rated power	Composite (Monitor out, VIDEO 1)	1 Vp-p, 75 ohms
IM Distortion	0.2 % at 1 watt output	S-VIDEO (Monitor out, VIDEO 1)	Y: 1 Vp-p, 75 ohms C: 0.28 Vp-p, 75 ohms
Damping Factor	60 at 8 ohms	Component signal output (DVD out)	Y: 1.0 Vp-p, 75 ohms, Negative sync. Cb/CR: 0.7 Vp-p, 75 ohms
Input Sensitivity and Impedance		Frequency Response	20 to 30,000 Hz : +/- 0.8 dB
LINE (VIDEO 1, 2, TV, TAPE)	200 mV, 50 kohms	Tone Control	Bass : +/- 10 dB at 50 Hz Treble : +/- 10 dB at 10,000 Hz
DIGITAL 2 (coaxial)	0.5 Vp-p, 75 ohms	Signal-to-noise Ratio	100 dB (IHF)
Composite (VIDEO 1, 2)	1 Vp-p, 75 ohms	Muting	-∞dB
S-VIDEO (VIDEO 1)	Y: 1 Vp-p, 75 ohms C: 0.28 Vp-p, 75 ohms		

DVD SECTION		Component signal output Y: 1.0 Vp-p, 75 ohms, Negative sync. Cb,CR: 0.7 Vp-p, 75 ohms	
Signal readout system	Optical non-contact	Frequency response	4Hz - 20kHz (44.1KHz), 4Hz - 22kHz (48KHz) , 4Hz - 44kHz (96kHz)
Linear velocity	3.49 m/s (Single Layer), 3.84 m/s (Dual Layer)	Wow and flutter	Below threshold of measurability
Error correction system	Reed Solomon Product Code		
Signal system	Standard NTSC		
Video output	1.0 Vp-p, 75 ohms, Negative sync.		
S Video output	Y: 1.0 Vp-p, 75 ohms, Negative sync. C: 0.286 Vp-p, 75 ohms		

TUNER SECTION			
Tuning Range	FM: 87.50 to 108.00MHz (50 kHz steps) AM: 530 to 1710 kHz (10 kHz steps)		
Usable Sensitivity	FM: Mono	11.2 dBf,	1.0 μV (75 ohms IHF) 0.9 μV (75 ohms DIN)
	Stereo	17.2 dBf,	2.0 μV (75 ohms IHF) 23 μV (75 ohms DIN)
50 dB Quieting	AM: Mono	30 μV	
	FM: Mono	17.2 dBf,	2.0 μV (75 ohms)
	Stereo	37.2 dBf,	20.0 μV (75 ohms)
Capture Ratio	FM: Stereo	2.0 dB	
Image Rejection Ratio	FM: Stereo	40 dB	
	AM: Stereo	40 dB	
IF Rejection Ratio	FM: Stereo	90 dB	
	AM: Stereo	40 dB	
Signal-to-noise Ratio	FM: Mono	73 dB, IHF	
	Stereo	67 dB, IHF	
	AM: Stereo	40 dB	
Alternate Channel Att. (+/- 400 kHz)	FM: Mono	55 dB, IHF	
Selectivity	FM: Stereo	50 dB, DIN	
AM Suppression Ratio	FM: Stereo	50 dB	
Harmonic Distorsion	FM: Mono	0.2 %	
	Stereo	0.3 %	
	AM: Stereo	0.7 %	
Frequency response	FM: Stereo	30 to 15,000 Hz (+/- 1.0 dB)	
Stereo Separation	FM: Stereo	45 dB at 1,000 Hz 30 dB at 100 to 10,000 Hz	
Stereo Threshold	FM: Stereo	17.2 dBf, 20 μV (75 ohms)	

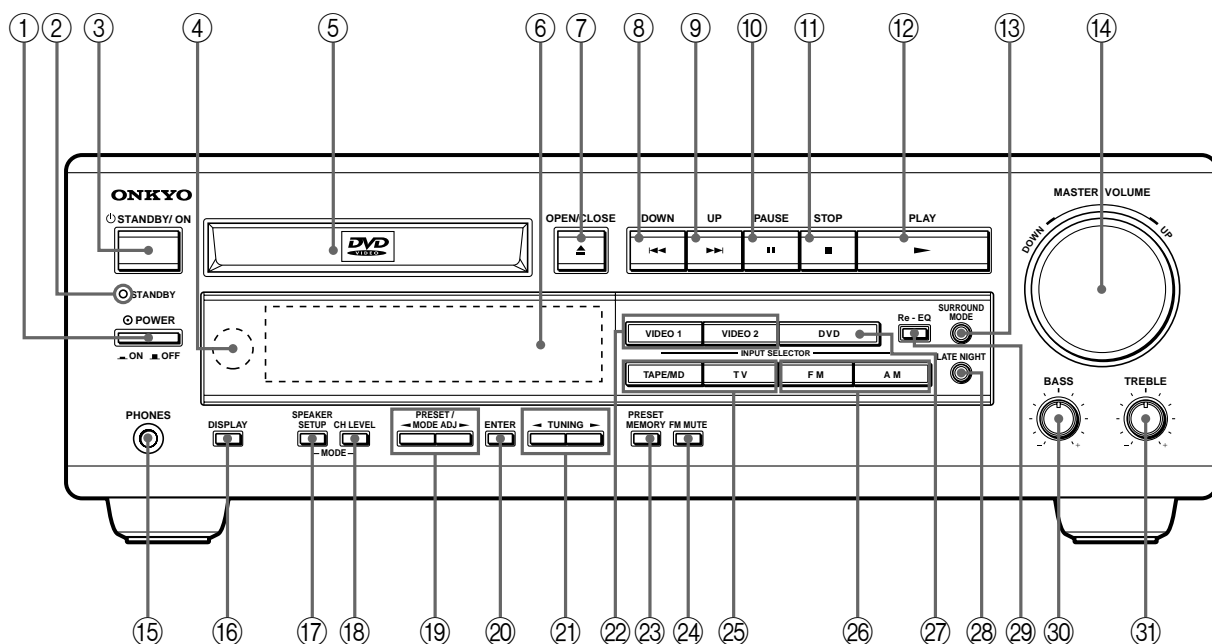
GENERAL	
Power Supply Rating	AC 120 V, 60Hz
Power Consumption	3.0 A
Dimensions (W x H x D)	435 × 145 × 414 mm 17 ¹ / ₈ " × 51 ¹ / ₁₆ " × 16 ⁵ / ₁₆ "
Weight	10.8 kg (23.8 lbs.)

Specifications and features are subject to change without notice.

Index to Parts and Controls

For operational instructions, refer to the page indicated in brackets.

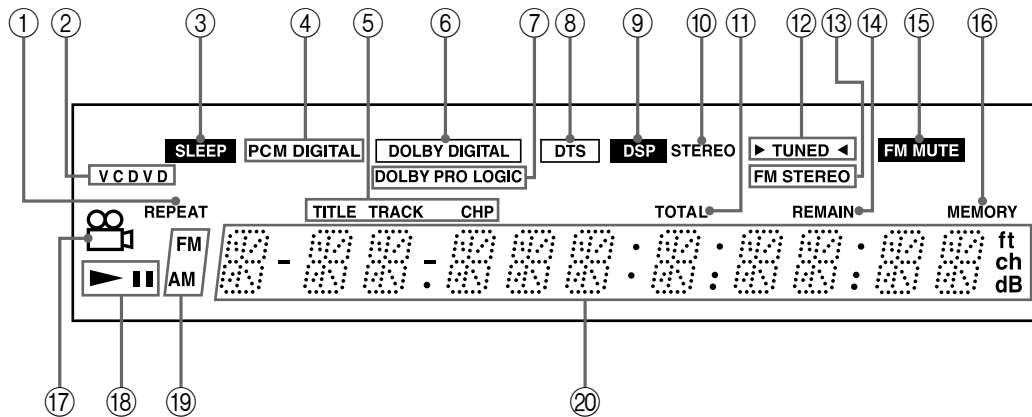
■ Front panel



- | | |
|----------------------------------|---|
| ① POWER switch [17] | ⑮ CH LEVEL/MODE button [32] |
| ② STANDBY indicator [8, 17] | ⑯ PRESET/MODE ADJ ◀/▶ buttons [18, 26, 27] |
| ③ STANDBY/ON button [17] | ⑰ ENTER button [18, 26, 27, 32] |
| ④ Remote control sensor [8] | ⑱ TUNING ◀/▶ buttons [26] |
| ⑤ DVD/VCD/CD disc tray [20] | ⑳ INPUT SELECTOR VIDEO 1/VIDEO 2 buttons [28] |
| ⑥ Display [42, 43, 46] | ㉑ PRESET MEMORY button [26, 27] |
| ⑦ OPEN/CLOSE (▲) button [20] | ㉒ FM MUTE button [26] |
| ⑧ DOWN (◀◀) button [24] | ㉓ INPUT SELECTOR TAPE/MD/TV buttons [28] |
| ⑨ UP (▶▶) button [24] | ㉔ INPUT SELECTOR FM/AM buttons [26, 27] |
| ⑩ PAUSE () button [21] | ㉕ INPUT SELECTOR DVD button* |
| ⑪ STOP (■) button [21] | ㉖ LATE NIGHT button [32] |
| ⑫ PLAY (▶) button [20] | ㉗ Re-EQ button [32] |
| ⑬ SURROUND MODE button [31] | ㉘ BASS control [29] |
| ⑭ MASTER VOLUME control [29] | ㉙ TREBLE control [29] |
| ⑮ PHONES jack [29] | |
| ⑯ DISPLAY button [42] | |
| ⑰ SPEAKER SETUP/MODE button [18] | |

* Press this button to select the DVD video/VIDEO CD/audio CD player of the DVD Receiver. Pressing OPEN/CLOSE or PLAY (when the disc is in the DVD Receiver) also switches the source to the DVD video/VIDEO CD/audio CD player.

■ Display

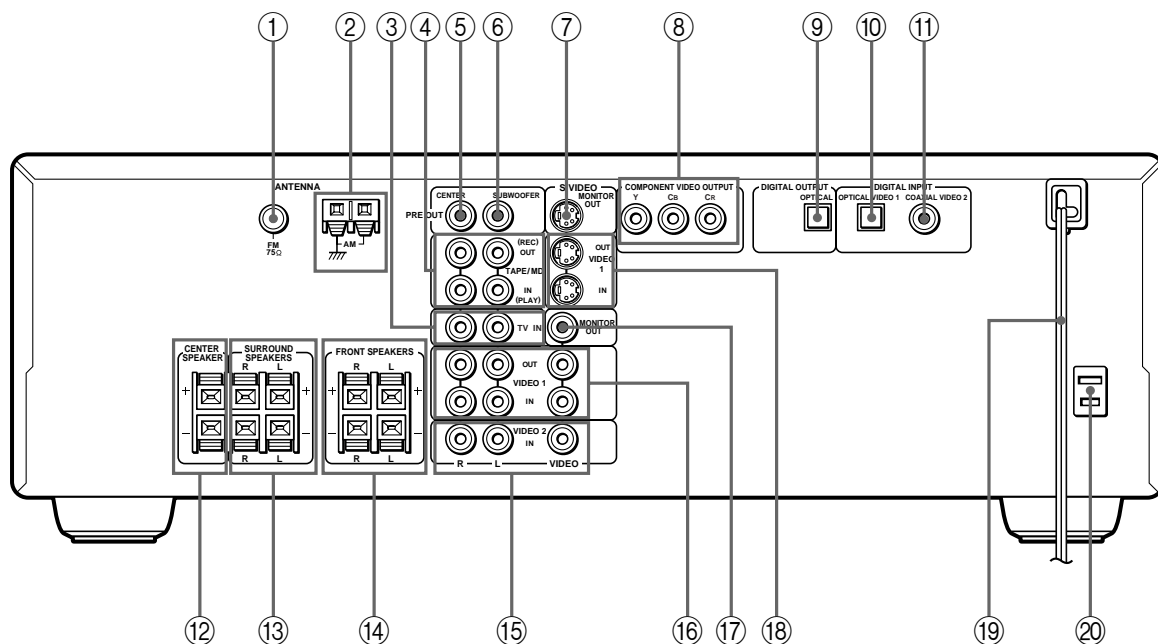


- | | |
|---------------------------------------|-------------------------------------|
| ① REPEAT indicator | ⑪ TOTAL indicator |
| ② Inserted disc indicator | ⑫ TUNED indicator |
| ③ SLEEP indicator | ⑬ FM STEREO indicator |
| ④ PCM DIGITAL indicator | ⑭ REMAIN (remaining time) indicator |
| ⑤ TITLE/TRACK/CHP (chapter) indicator | ⑮ FM MUTE indicator |
| ⑥ DOLBY DIGITAL indicator | ⑯ MEMORY indicator |
| ⑦ DOLBY PRO LOGIC indicator | ⑰ Angle icon indicator |
| ⑧ DTS indicator | ⑱ Play mode indicator |
| ⑨ DSP indicator | ⑲ FM/AM indicator |
| ⑩ STEREO indicator | ⑳ Multipurpose display |

(Continued on next page.)

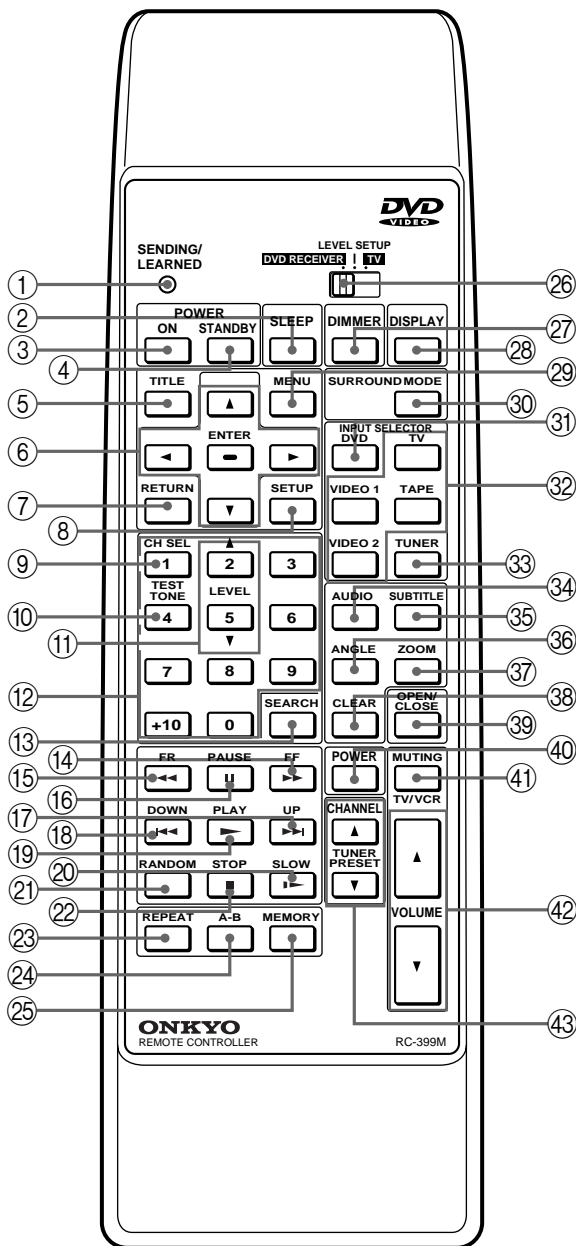
Index to Parts and Controls (continued)

■ Rear Panel



- | | |
|--|--|
| ① FM ANTENNA connector [14] | ⑫ CENTER SPEAKER connectors [12] |
| ② AM ANTENNA connectors [14] | ⑬ SURROUND SPEAKERS connectors [12] |
| ③ TV IN jacks [10] | ⑭ FRONT SPEAKERS connectors [12] |
| ④ TAPE/MD
IN (PLAY)/OUT (REC) jacks [11] | ⑮ VIDEO 2
IN jacks [11] |
| ⑤ PRE OUT CENTER jack [10] | ⑯ VIDEO 1
OUT/IN jacks [11] |
| ⑥ PRE OUT SUBWOOFER jack [12] | ⑰ MONITOR OUT jack [10] |
| ⑦ S-VIDEO MONITOR OUT jack [10] | ⑱ VIDEO 1
(S video) OUT/IN jacks [11] |
| ⑧ COMPONENT VIDEO OUTPUT Y/C _B /C _R jacks [10] | ⑲ Power cord [17] |
| ⑨ DIGITAL OUTPUT OPTICAL jack [11] | ⑳ AC outlet [16] |
| ⑩ VIDEO 1
DIGITAL INPUT OPTICAL jack [11] | |
| ⑪ VIDEO 2
DIGITAL INPUT COAXIAL jack [11] | |

■ Remote controller



- ① SENDING/LEARNED indicator [8, 60]
- ② SLEEP button [29]
- ③ POWER ON button [17, 60]
- ④ POWER STANDBY button [17]
- ⑤ TITLE button [23]
- ⑥ ▲/▼/◀▶ ENTER buttons [17, 21, 44]
- ⑦ RETURN button [34, 47]
- ⑧ SETUP button [44]
- ⑨ CH SEL button [19, 32]
- ⑩ TEST TONE button [19, 32]

- ⑪ LEVEL ▲/▼ buttons [32]
- ⑫ Number buttons [23]
- ⑬ SEARCH button [23, 24, 25]
- ⑭ FF (▶▶) button [22]
- ⑮ FR (◀◀) button [22]
- ⑯ PAUSE (||) button [21]
- ⑰ UP (▶▶I) button [24, 35]
- ⑱ DOWN (I◀◀) button [24]
- ⑲ PLAY (▶) button [21]
- ⑳ SLOW (▶▶) button [22]
- ㉑ RANDOM button [35]
- ㉒ STOP (■) button [21, 55]
- ㉓ REPEAT button [33]
- ㉔ A-B button [33]
- ㉕ MEMORY button [34, 60]
- ㉖ DVD RECEIVER/LEVEL SETUP/TV switch [8, 19, 32, 60]
- ㉗ DIMMER button [29]
- ㉘ DISPLAY button [34, 42, 43]
- ㉙ MENU button [39]
- ㉚ SURROUND MODE button [31]
- ㉛ INPUT SELECTOR DVD button*
- ㉜ INPUT SELECTOR TV/TAPE/VIDEO 1/VIDEO 2 button [28]
- ㉝ INPUT SELECTOR TUNER button [27]
- ㉞ AUDIO button [39, 40]
- ㉟ SUBTITLE button [38]
- ㊱ ANGLE button [37]
- ㊲ ZOOM button [36]
- ㊳ CLEAR button [33 – 40]
- ㊴ OPEN/CLOSE button [21]
- ㊵ POWER button [60]
- ㊶ MUTING/TV/VCR button [29, 60]
- ㊷ VOLUME ▲ /▼ buttons [29, 60]
- ㊸ CHANNEL TUNER PRESET ▲/▼ buttons [27, 60]

* Press this button to select the DVD video/VIDEO CD/audio CD player of the DVD Receiver. Pressing OPEN/CLOSE or PLAY (when the disc is in the DVD Receiver) also switches the source to the DVD video/VIDEO CD/audio CD player.

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